THE CULTIVATOR.

NEW "TO IMPROVE THE SOIL AND MIND." SERIES

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BREEDING HORSES—No. I.

MESSRS. EDITORS—In the January number of the Cultivator, you made some remarks on breeding horses. I fully agree with you in regard to the advantages that would accrue from rearing good stock of this description; and I admit also, the importance of knowing the history or origin of our best horses. On this point, I notice that you attribute the excellence of some of our best roadsters to an admixture of the blood of the English race horse with our "country" mares. I shall not at present dispute the correctness of this conclusion; but as some may draw the inference that a resort to that blood would now be productive of equal advantages, I wish to offer a few remarks; and after having duly considered this point, I propose, with your leave, to make some observations on the best mode of improving our horses for the carriage and road.

First, then, I would observe that the horses spoken of by you as having produced so great an improvement in the stock of the country, were "*blood horses of the olden time.*" This is a distinction which I consider it important to bear in mind, as in my opinion a great change has taken place in the character of blood horses within the last seventy or eighty years. The fashion of the turf has changed; formerly, long races with heavy weights, were the test of superiority; now it is short races with light weights. With this change there has been a corresponding variation in the character of race horses. Instead of a strong, close-knit, substantial animal, able to carry weight and sustain himself under long-continued action, the object now is to obtain one whose conformation will admit of his making the longest and most rapid strides for a short time. All who have any knowledge of animal locomotion, know that quite a different form and proportions are necessary for the different purposes mentioned—they know, practically, that though long legs may give speed, short ones are required for endurance.

But in relation to the difference between the blood horses of the "olden time," and those of the present day, I do not wish you to rely solely on my own statements, and I will therefore offer authority which I think will not be questioned. I will first submit the testimony of English writers, and afterwards that of competent individuals of our own country, and thus 'by the mouths of many witnesses" establish the point.

The writer of an essay "On the Improvement of the Breed of Horses," published in the (London) *Farmers' Mag.* for 1845, states that the number of inferior horses in England has very much increased within a few years, and he proceeds to inquire into the causes of this result:

"The description of horses to which our inquiry extends, are of that class constituting hunters and roadsters, both in saddle and harness, coachers and chargers, or what is called 'half stock.'" The qualities which are required in this description of stock, he observes—"are speed and endurance, with the capability of carrying heavy weights, with varied pace, through deep ground across a broken country; and in order that they should possess these capabilities, they should have what are commonly termed, in hunters' phraseology, '*bone*, *muscle*, and *compactness*,' by which is understood compactness of form, and the bone and muscle in their proper places. * * * It would appear that our blood stock formerly possessed these characters in an eminent degree, and by reference to former sporting publications, it will be seen that they were shorter in the leg, and capable of carrying heavy weights and running long distances; now they run with light weights and short distances, where bottom is not so necessary. Our fleetest racers were then what are now called *small* horses, which means that they were not the tall, lengthy, leggy racers of the present day, but compact, muscular, and remarkable for their capabilities of carrying heavy weights, and power of endurance. * * * This change in our blood stock has originated in consequence of alterations which have taken place on the turf. If the great stakes at present were two and three miles, instead of half or one mile distances, they would certainly be won by the 'stoutest blood,' though not perhaps, the fastest horse. * * * A mile is not sufficient to try the strength and endurance of any horse, although it may do to test its speed for the purposes for which he is now chiefly required, viz., *to win a heavy stake.*"

An impression prevails in this country, that blood horses, with long pedigrees, must of course be valuable, and calculated to improve our common stock. Hence it is that large patronage is frequently bestowed on stallions, which, excepting in length of pedigree, are decidedly inferior. This tends greatly to increase the number of poor horses. The same error in breeding prevails in England, and produces the same ill consequences. This is shown by Mr. JOHN BURKE, Jun., in an essay on the "Breeding and Management of Horses on a Farm," published in the fifth volume of the *Journal of the Royal Agricultural Society*, 1845.) Speaking of the numbers of inferior horses, with thorough-bred pedigrees, which are kept as stallions, Mr. BURKE says—"This system is tantamount to the supposition that a horse of full blood, must *ipso facto*, be an animal likely to beget stock of a superior description; whereas, those who have paid only a moderate share of attention to the subject of breeding, must be aware that *there is perhaps no distinct species* [breed?] *of horses among which are to be found so many absolutely worthless animals, as among those that are thorough bred.*" This fact, he adds, is fully borne out by the great numbers of "weedy tho

rough-bred hacks" which are shown about the country, and which, though they have, he admits, "some degree of showiness," are nevertheless quite unfit to go through with only a very moderate share of fatigue, with a weight of twelve stone, [168 lbs.] on their backs;" and he adds that in all probability, many of them might be purchased at the close of the season, "for a less sum than the first cost of begetting them."

Prof. Low, in his "Illustrations," speaks directly to this point. He says—"It is difficult to institute a precise comparison between the horses of a former age and those of the present day; but it is the opinion of the most careful observers, that the present breed of race horses has for a period past been tending to become small, long-limbed, delicate in constitution, and accordingly inferior to the elder horses of the turf."

Of a similar character is the testimony of a correspondent of "*Bell's Life in London*," 1845:)

"The English race horse is an animal of which all classes of our countrymen are justly proud; but at the same time it may be doubted whether the great and numerous prizes now offered to speed, without much regard to stoutness do not produce results injurious to the country; and I wish to call the attention of your readers, who comprise most of the sporting public,) to the present state of our horses. The Arabian blood, by its mixture with ours, has long since attained to a wonderful degree of perfection; and racing having been at an early period enrolled among our national amusements, the attention of the most wealthy among us has been directed to race horses, and to the breeding of them with the utmost possible speed. Formerly horses had to run four miles at high weights; now it is a course of a mile and a half, with light weights, to try to approximate to the speed of steam. One attempt has been made to stem the torrent, by the race instituted some years ago by the Duke of Portland, but it was against the fashion, and it was given up; and if any one objects that such a race is more cruel and more distressing to horses than a short one, I say he can know but little of racing, for horses differ much more in stoutness than in speed; and as you lengthen the course you do away with the keenness of the contest, which is what causes the distress, and this in fact is the very reason why the B. C. [Beacon course, which is 4 miles, 1 furlong, and 138 yards round,] is unpopular. A leggy animal, with a long stride is worth more now than he was in the days of our fathers; this I say is entirely wrong and mischievous. Then, as to another point—no regard is paid to sound and lasting legs and feet for mares or stallions; these points would be carefully looked to for a riding horse, but when it comes to breeding a more valuable animal, the breeder says, 'Oh, the colt will come out well at two years old, and win me a few good stakes, and that will do, never mind his legs.' Then again, what carelessness there is as to size and power, especially as to the dam; on these points, stoutness, soundness, and power, I say, most wonderful indifference is daily shown, as any man will see who looks through thorough bred studs, in nine cases out of ten. Let him go to Tattersall's and almost all the thorough breds he sees sold will be thin long-legged colts, (most of them chestnuts,) with slight and upright pasterns, and small round fetlocks. What on earth are they good for? a Welsh pony would kill three or four of them in a costermonger's cart. Then we expect to sell our thoroughbreds to foreigners, but they will not buy small lame oats; they buy nothing but the very best sort we have. In short, whether for use at home, or as merchandise to go abroad, we ought to be more particular in the shape, size, and soundness of sires and dams of horses, than the Short-Horn breeders are as to their cattle; and whereas, most of us, on the contrary, trust to blood, and think of little else. I have addressed you long ago on this subject, but I do so again because I think it one of great and national importance, and because I see the evil growing daily. There would be much less expense and much less disappointment, if one colt was bred from a sire and dam of true form and soundness, than if six were bred at random, with the hope of one turning up a trump. Again, it is not near so easy now as it used to be to buy a good, strong, young hunter. And steam is in some measure the cause of this, for an old fashioned, compact, active, coaching mare, when her work was over, bred a good hunter by a lengthy thorough-bred horse; now, the demand for the machiner is nearly gone, and the animal is very scarce. In the want, then, of this middle class, from which to recruit the patrician blood of our Sultans, &c., we have an additional motive to be careful about strength and size in the latter. I have been bitten by thorough-breds when younger, but I think of them now, that though a large and powerful thorough-bred is the finest form of a horse, bring me them at random, and I will engage three out of four will be irredeemable rips."

In my next I shall adduce the testimony of our own countrymen, in relation to this subject. EQUUS.

CULTIVATION OF ONIONS.—JOHN W. PROCTOR, Esq., of Mass., states in the *Boston Cultivator*, that there are three individuals in his neighborhood, each of whom produces annually from two thousand to three thousand bushels of onions. They, in some instances, rent the land at from $6 to $10 per acre, and the average product is 300 bushels per acre. He says the onions, when ready for market, are worth $100 more than the rent of the land and the cost of the manure, leaving this sum as the compensation of the labor applied." He does not give the price of the onions per bush., but we have lately seen it stated that the average in that neighborhood is thirty-seven and a half cents per bushel. The same land is continued in onions several years in succession. Mr. P. states that some lots have borne this crop every year for ten years, without any depreciation in yield. "Muscle-bed" and leached ashes are much used for manure. Great pains are taken in the preparation of the soil, particularly to have the top well pulverized. The seed is sown with great accuracy by a machine, and strict attention is given to keeping the crop clear of weeds. It is calculated that one man and two boys of the ages of 12 to 16 years will manage ten acres. Mr. P. says he knows of several individuals who commenced this business at the age of twenty-one, and have pursued it for a dozen years or more, have brought up respectable families, and are now worth comfortable estates.

IMPROVED IMPLEMENTS.—In the report for the county of Champaign, published by the Ohio Board of Agriculture, it is said—"Hussy's reaping machine, worked by horse power, was introduced in this county during the past harvest, and some two or three hundred acres of wheat cut with it. It cuts the grain without waste, and leaves a short even stubble. It employs nine men and four horses to work it, and cuts upon an average 12 to 15 acres per day. The man who sits on the machine, to pass the grain off the platform, works very hard, and to great disadvantage, from the position in which he is obliged to sit. Machines are now being made in Urbana, our county town, to order, by a machinist who promises to make them so that they will pass off the grain to the binders for any size sheaf that may be desired, thus superseding the necessity of a man on the machine for that purpose. Improved threshing machines, whereby the grain is threshed and cleaned by one operation, at the same cost per bushel as was formerly paid for threshing alone, are now in pretty general use in this county. The wheat-drill was used by several of our farmers last fall, for the first time."

VALUE OF DIFFERENT KINDS OF VEGETABLE FOOD,

BASED UPON THEIR PER CENTAGE OF NITROGEN.

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Introduction.

Since Gay-Lussac's discovery of nitrogen in the seeds of plants, the conception of animal nutrition has been assuming a more and more definite character.

Already had the principal proximate ingredients of meals, by taking advantage of their physical properties, been separated from each other; gluten, albumen and legumin, starch, gum, sugar, dextrine, and woody fibre were known, and their physical, as well as some of their chemical properties,* had been studied.

Their more accurate chemical constitution was reserved to a later period, when the interesting disclosure was made, that they may be arranged in two classes, those containing nitrogen, and those containing no nitrogen; and that the former as well as the latter are, among themselves, nearly identical in composition.

It is well known that laborers, supplied only with food containing no nitrogen, become incapable of executing their tasks; and further, that the corporeal system, even without labor, cannot be sustained upon such food. The discovery of the near identity in chemical composition between vegetable albumen, fibrin, and caseine, and the corresponding bodies found in the animal kingdom, gave the above facts their explanation.

The food must contain an ingredient suited to replace the animal matter consumed.

This being known, and the quantitative relation of the several elements of the nitrogenous compounds being also known, an estimate of the value of given kinds of food, becomes, in the hands of the chemist, a problem of comparatively easy solution.

Object of Investigation.

The following investigation, undertaken at the suggestion, and under the direction of Prof. V. Liebig, in the Giessen Laboratory, had for its object the determination of the *relative values of different kinds of vegetable food.*

These values are threefold.

The various forms of food derived from grains, herbage, and roots, furnish, 1st, bodies containing nitrogen; 2d, bodies destitute of nitrogen; and 3d, inorganic salts, —all of which are serviceable in the animal economy.

The nitrogenous bodies, from their solution in the blood, form the tissues—the actual organism. The bodies wanting nitrogen contribute, by their more or less perfect combustion, to the warmth of the animal body; and the salts of the alkalies and alkaline earths, serve in building up the osseous framework, beside constituting an essential part of every organ of the animal system.

Their values for the latter purpose are in proportion to the phosphates the ashes contain.

Their values for the second purpose above-mentioned, may be considered, in general, as in the inverted relation of their values for the first;—since the larger the proportion of nitrogenous bodies, the less must be the proportion of bodies wanting nitrogen.

Their values for the first purpose, that of ministering to the support and growth of organic tissues, have been the specific object of the hereafter enumerated determinations.

* Fr. Marcet found gluten consisting of 55.7 per cent. of carbon, 22.0 per cent. of oxygen, 7.8 per cent. of hydrogen, and 14.5 per cent of nitrogen.—*Annal. de Chim. et de Physiq.*, xxxvi., p. 27.

Previous Labor.

Boussingault, to whom the agriculturist is so largely indebted for practical researches bearing upon the interests of husbandry, has not left this field untrodden. It was thought, however, that the worth of his table of nutrition from the vegetable kingdom, could lose nothing by a series of carefully conducted analyses, embracing the chief varieties of vegetable food consumed by men. It was, moreover, conceived, that in substances containing so small a per centage of nitrogen as grains and roots generally, the method of Messrs. Varrentrapp and Will for determining nitrogen, would give more accurate results than that of Dumas, employed by Boussingault. The analyses hereafter given, of the same substance, rarely varied from each other more than one-tenth of one per cent.; and yet the determinations which follow, and those of similar substances made by the distinguished French chemist, in general differ no farther from each other than might be expected, from productions of the same vegetable species, grown on different soils.

Buckwheat, (*Polygonum fagopyrum*) constitutes an exception to this remark. In the table of analytical results, page 294, Boussingault's Economie Rurale, (Ger. Edition,) this grain has a nitrogen per centage of 2.40, while two ordinary varieties of wheat (*Triticum vulgare*) have 2.33 and 2.30 per cent. Buckwheat meal from Vienna gave, as shown below, 1.08 per cent. Buckwheat grains (*Polygonum Tartaricum*) from the experimental field of the Hohenheim Agricultural Institute, gave 1.56 per cent. of nitrogen, while the analyses of three superior varieties of wheat, grown in the same field, gave respectively, 2.59, 2.68, and 2.69 per cents. This species was further found to contain 22.66 per cent. of woody fibre.

The equivalent* value of buckwheat, according to Boussingault, wheat being 1.00, is 1.08. The following analyses give, for its equivalent value, 1.70. For that of the Vienna buckwheat meal, 2.45.

Grains and Roots—where procured.

For the following investigation, the meals, table peas and beans, and lentils, were procured by Prof. v. Liebig, from Vienna. The grains, with the exception of rice and *Triticum monococcum*, were furnished from the cabinet of the Hohenheim Agricultural Institute, in the kingdom of Wurtemberg, in reply to a request for the most approved sorts of cerealia cultivated in Europe. The roots were from Giessen.

Mode of Investigation.

The several meals, grains, and roots, in their market condition, were dried in a water bath, at 100° C., (212 Fah.)

In drying the potatoes, beets, carrots, and turneps, care was taken to cut as thin shavings as possible, which with the least delay were placed singly upon watch-glasses, weighed and seated in the water-bath.

For carbon and hydrogen, the combustions were made with oxide of copper, a mixture of chlorate of potash

* By equivalent is meant that which may replace—or is equal to in value. In this case, it signifies the equal in value as food.

and oxide of copper, having been placed at the extremity of the combustion tube.

It was found difficult to reduce the woody fibre of the oats, barley, and buckwheat, to the requisite fineness for a complete combustion. Where the difficulty could not readily be overcome, in addition to chlorate of potash at the extremity of the tube, it was found well, in filling with mixed substance and oxide of copper, to add, at intervals of an inch and a half, a small quantity of finely pulverized and thoroughly mixed oxide of copper and chlorate of potash. The successive evolutions of oxygen in this case, thoroughly reoxidized any portions of copper reduced in the progress of combustion, and secured the most satisfactory results. Difficulty presented itself also in the combustion of the potatoes, beets, and other roots, arising from the extreme compactness of the substance when dried. It was however, overcome by the method already mentioned.

The nitrogen determinations, as already intimated, were according to the method of Messrs. Varrentrapp and Will.

The per centage of woody fibre was determined in the following manner. Grains, such as had been analyzed, were digested upon a sand-bath several weeks in dilute hydrochloric acid, one part of acid to a thousand parts of water. At intervals of from eight to ten days, the fluid was poured off, and, with diluted acid as before, the digestion resumed. After a month and a half, the woody fibre not appearing wholly freed from this substance, an equally dilute solution of caustic potash was employed, and the digestion therewith resumed. At the end of two months, the woody fibre of the oats, barley, and buckwheat, were poured upon filters, thoroughly washed with distilled water, and dried at 100° C.

Of beans and peas the hulls, separated by treating with cold water, were alone digested with dilute caustic potash, repeatedly pouring off the liquid and resuming the digestion afresh. At the conclusion of four weeks, the hulls were washed and dried at 100° C.

MODE OF ESTIMATE.

To express in hundred parts the results of analysis, the carbon, hydrogen, oxygen, and sulphur of the nitrogenous ingredients, were estimated from the per centage of nitrogen.*

The carbon and hydrogen so estimated, deducted from the whole per centage of carbon and hydrogen, gave what belonged to the starch, gum, woody fibre, sugar, &c. The oxygen of the latter was estimated from the carbon, by the formula C_{12} H_{10} O_{10} †

The detailed analyses and determinations, covering thirty-five pages octavo, of Liebig's Annalen, are omitted, the results, *merely*, being given, in the tables which follow.

RELATIVE WORTH OF INDIVIDUAL KERNELS.

According to their Mass and per cent. of Nitrogen.

NAME.	Ten kernels in fresh condition, weighed in grammes.	Relative weight of individual kernels Bush rye taken as unity.	Per cent. of Nitrogen in fresh condition.	Relative amount of nitrogen in the individual kernels, Bush rye taken as unity.
Bush rye.....	0.1220 gr.	1.	2.39	1.
Rush rye,.....	0.1838 "	1.5	2.13	1.3
Talavera wheat. ...	0.3606 "	3.	2.19	2.7
Whittington wheat, .	0 4239 "	3.5	2.30	2 9
Sandomierz "	0.3199 "	2.8	2.13	2.4
Indian corn.	3.5934 "	20.4	1.95	24.
Jerusalem barley,...	0.5312 "	4.3	1.92	3.6
Common barley,....	0.3955 "	3.2	2.40	2.4
Kamschatka oats, ...	0.3446 "	2.8	2 08	2.4
Early panicled oats..	0.3689 "	3.	2.45	3.1
Tartarian buckwheat	0.2566 "	2.1	1.33	1.2
Table peas,.	2.6080 "	21.4	3.83	34.3
Field peas, ...	1.9828 "	16.3	3.68	25.1
Table beans, ...	3.1431 "	25.5	3 87	41.2
Large white beans..	5.2390 "	43.3	3.86	69.9

TABULAR VIEW

Of Elementary and Inorganic Ingredients, in per cents., of substance dried at 100° C.

NAME.	Nitrogen.	Carbon.	Hydrogen	Oxygen.	Sulphur.	Ashes.
Wheaten flour, Vienna, No. 1,...	3.00	45.74	6 70	43.23	0.23	0.70
" " " No 2,...	2.12	45.18	6.65	41.81	0.15	0.67
" " " No. 3,...	3.44	46.86	6.78	42.65	0.25	1.11
Talavera wheat, Hohenheim,....	2 59	44.93	6.25	43.35	0.18	2.80
Whittington " "	2 68	44.42	6.82	42.56	0.19	3.13
Sandomierz " "	2 69	44.20	6.68	42.28	0.19	2.40
Rye flour, Vienna, No. 1, ...	1.87	44 37	6 65	44.55	0.13	1.33
" " No. 2, ...	2.93	45.19	6.56	42 77	0.21	1.07
Bush rye, Hohenheim,.	2.78	45.52	6 58	43.51	0.15	0.86
Rush rye. "	2 47	45.23	6.57	43.98	0.18	2 37
Potenta meal, Vienna,.	2.14	45 01	6.60	44.62	0.15	0.86
Yellow Indian corn, Hohenheim,	2.30	45 45	6.61	44.66	0.16	1.92
Triticum monococcum, Giessen..	2.07	44.54	6.72	44 24	0.15	2.01
Jerusalem barley, Hohenheim, ..	2.31	45 50	6.87	44.68	0.16	2.84
Common winter barley, " ..	2.79	45.22	6.99	42 16	0.20	5.52
Kamschatka Oats, " ..	2.39	46 50	6.68	45 59	0.17	3 26
Early white panicled oats, Hoh..	2.82	46.66	6.71	44.68	0 20	4.14
Common rice, ...	1.16	44.61	6.53	46.62	0.08	0.36
Buckwheat flour, Vienna.....	1 08	44.27	6.54	46.50	0.07	1.09
Tartarian Buckwheat, Hohen., ..	1.56	45.42	6.45	46.50	0.11	2.30
Table peas, Vienna, ...	4.42	45 12	6 73	37 92	0.14	3.18
Field peas. Giessen, ...	4.57	45.34	6.42	38.75	0.14	2.79
Table beans, Vienna,.....	4.47	45.07	6.63	38.73	0.14	4.38
Large white beans, Giessen, ...	4 59	45.18	6.80	38.55	0.14	4.01
Lentils Vienna, ...	4.77	45 35	6.75	38.28	0.15	2 60
White potatoes, Giessen,.....	1.56	43 86	6.0	44 77	0.11	3.61
Blue potatoes, "	1.20	43.25	6.31	45.00	0.08	3.36
Carrots, "	1.67	43 34	6 22	43.90	0.12	5.77
Red beets, "	2.43	40.99	5.72	39.37	0.17	6.43
Yellow French beet, "	1.81	[illegible]	5.94	41.06	0.13	[illegible]2
Ruta baga, "	1.45	[illegible]31	6.01	42.59	0.10	[illegible]01
White turneps, "	1.98	3.19	5.68	42.96	0.14	[illegible]2
Onions, "	1.18	.....	.....	.....	.....	8.53

* Mulder's analysis of coagulated albumen, Scheerer and Jones' analyses of legumin and gluten (Annalen der Chemie und Pharmacie. XXXIX., page 360;) and Heldt's analysis of the gluten of rye (Annalen der Chemie und Pharmacie, XLV., page 198,) differ so little from each other, that a single formula has been constructed upon Mulder's analysis of coagulated albumen, and with a little modification employed in determining the elements of the nitrogenous ingredients of all the substances subjected to investigation.

Mulder's per centage of oxygen was reduced by that of the sulphur, which has been ascertained during the last session of the Giessen Laboratory, and kindly furnished to me by Dr. Ruling. It is for gluten, 1.14 per cent., and for legumin 0.50 per cent.

The still undetermined phosphorous is included in the oxygen.

Below follow the analyses alluded to above:

	GLUTEN. *Scheerer.*	*Jones.*	COAGULATED ALBUMEN. *Mulder.*
Carbon,.....	54 60	55.22	54.99
Hydrogen,.....	7.30	7.42	6.87
Nitrogen,.....	15.81	15.98	15.66
Oxygen, P. & S.,..	22.28	21.38	22.48
	LEGUMEN. *Scheerer.*	*Jones.*	GLUTEN OF RYE *Heldt.*
Carbon, ...	54.13	55.05	56.38
Hydrogen, ...	7.15	7.59	7.87
Nitrogen, ...	15.67	15.89	15 83
Oxygen, P. & S.,..	23.03	21.47	19.96

The numbers employed were

Carbon,.....	54.99	
Hydrogen,.....	6.87	
Nitrogen,.....	15.66	
Sulphur, ...	1.14	— 0.50
Oxygen and Phosphorus..	20.92	— 21.98

Mucin, discovered by Berzelius, is recognized among the nitrogenous compounds. As analyses of vegetable fibrine and vegetable albumen, with and without it, according to Prof. v. Liebig, give the same result, it may be presumed that its composition is identical with theirs.

† The following list of the chief bodies present in the substances analyzed, with their annexed constitution, will justify the method pursued.

Starch,.....	C_{12} H_{10} O_{10}
Dextrine, ...	C_{12} H_{10} O_{10}
Gum.....	C_{12} H_{10} O_{10}
Woody fibre, Payen,.....	C_{12} H_{10} O_{10}
Cane Sugar.....	C_{12} H_{11} O_{11}
Pectic acid, dried by 140° C, Regnault,.....	C_{12} H_8 O_{11}
Pectic acid, Mulder, ...	C_{12} H_8 O_{10}
Pectin combined with P b O, Fremy, ...	C_{10} H_9 O_{11}

Starch and woody fibre exceed in per centage, all the other ingredients enumerated, in most of the substances analyzed; and are beside, identical in constitution with gum and dextrine.

CHAFF AND HULLS, EXPRESSED IN PER CENT.

Name.	Chaff and hulls at 100°.	Ashes of chaff or hulls	Woody fibre.
Common Winter Barley,.	5 40	1.90	5.30
Panicled Oats,.....	16.66	3.35	16.10
Tartarian Buckwheat,....	22.67	0.08	22.66
Table Peas, ...	7.65	2.47	7.47
Field Peas.	6.11	1.86	6.00
Table Beans, ...	4 01	3.84	3 86
Large white Beans,.....	4.41	7.48	4.09

TABLE

Of Nitrogenous Ingredients in per cents

Name.	Nitrogenous Ingredients. Dried at 100° C.	Nitrogenous Ingredients. In fresh condition.	Water
Wheat flour, Vienna, No 1,....	19.15	16.51	13.84
" " " No. 2,....	13 54	11.69	13.65
" " " No. 3.....	21.97	19.17	12.73
Talavera wheat, Hohenheim....	16 54	13 98	15.43
Whittington wheat, Hohenheim.	17.11	14.72	13.93
Sandomierz " "	17 18	14.51	15.48
Rye flour, Vienna,.....	11 94	10.34	13·78
Rye flour Vienna, No. 2, ...	18.71	15.96	14.68
Bush rye, Hohenheim, ...	17.75	15.27	13.94
Rush " "	15.77	13.59	13.82
Polenta meal, Vienna.	13 66	11.53	13.36
Yellow Indian corn, Hohenheim.	14 68	12.48	14 96
Triticum monococcum, Giessen.	13.22	11.30	14.40
Jerusalem barley, Hohenheim...	14.74	12.26	16.79
Common winter barley. Hoh'm.	17.81	15.35	13.80
Kamschatka oats, Hohenheim..	15.26	13.32	12.71
Early panicled oats,.....	18.00	15.67	12.94
The same, without chaff, ...	21.57	18 78	12.94
Common rice.....	7.40	6 27	15.14
Buckwheat meal, Vienna, ...	6.89	5.84	15 12
Tartarian buckwheat, Hohen'm.	9.96	7.94	14.19
Table peas, Vienna,.....	28 02	24.41	13.43
Field peas, Giessen,.....	29.18	23 49	19.50
Table beans Vienna.....	28 45	24.71	13 41
Large white beans, Giessen,....	29.31	21 67	15.80
Lentils. Vienna, ...	03.46	26.50	13.01
White potatoes, Giessen.	9.96	2 49	74.95
Blue potatoes, "	7.66	2.37	68.49
Carrots, "	10.66	1.48	86.10
Red beets, "	15.50	2.83	81.61
Yellow French beet, "	11.56	2.04	82.25
Ruta baga beet, "	9.25	1.54	83.28
White round turneps, "	12.64	1 54	87.78
Onions, "	7.53	0 46	93.78

TABULAR VIEW

Of Nutriment values expressed in equivalents, wheat placed at 100.

Name.	Theory. Dried at 100° C.	Theory. In fresh condition.	Experiment. In fresh condition.
Wheat, ...	100.	100.	94.
Rye, ...	98 8	97.6	97.6
Indian corn,.....	115.	113.	108.
Triticum monococcum, ..	128.	124.6	——
Barley, ...	104.	102	101 5
Panicled oats, ...	92.	90.	112 7
The same, without chaff,.	78.	76 3	——
Kamschatka oats,..... ..	110.	106.	112.7
Common rice, ...	220.	225.	——
Tartarian buckwheat....	170.	166.	122.7
Table peas,.....	59.9	57 6	90.7
Field peas,.....	57.7	60.	90.7
Table beans, ...	59.2	57.	90.7
Large white beans.	58.8	57.	94.7
Linsen.....	55.5	53.	——
White potatoes,.....	169.8	565 6	429.
Blue potatoes, ...	220.8	596.3	429.
Carrots, ...	158.6	959 4	545.4
Red beets,.....	100.	501 5	——
Yellow French beet,....	146.	689.5	643.
Ruta baga.....	182.7	919.4	589.7
White turneps, ...	133.8	919.4	1000.
Onions.	224.6	210 6	——

The last column, in the above table, contains the average results of experiments with a view to practical equivalents, as given by Boussingault, pp. 292, 295 German ed. One of the results with wheat differs so greatly from the others, that it was neglected.

CONCLUSIONS.

By comparing the results of the above investigation with each other, and with those previously known, the following conclusions have been arrived at.

That the same species of cereal grain, grown on different soils, may yield unequal percentages of nitrogen.

That wheat and rye flours, to the eye and sense of feeling undistinguishable from each other, may differ by from one to three-tenths of their whole quantity of nitrogen.

That one-seventh of fresh, ripe cereal grains, is moisture, that may be expelled at a temperature of 100° C.

That root crops grown on different soils, may yield unequal percentages of nitrogen.

That the percentage of moisture in edible roots is a constant quantity for each variety.

That beets, carrots, and turneps, have a larger percentage of moisture than potatoes.

That more aliment is contained in a given weight of peas, beans, or lentils, than in an equal weight of any other kind of food above analyzed.

That in several of the grains and roots analyzed, there are organic bodies beside those identical in composition with gluten and starch.

That the ashes of carrots, beets, turneps, and potatoes, as Prof. v. Liebig has already remarked, contain carbonates.

That the ashes of all the varieties of vegetable food above analyzed contain iron.

Finally that the difference between the theoretical equivalents of vegetable food, as estimated from the percentage of nitrogen, and those ascertained by the experiments of stock growers; and the differences between the results of different stock growers may be attributed to the following causes:—

First, because the percentages of nitrogen and carbon, in the grains and roots of the same species or variety, when grown on different soils, are unequal.

Because the prominent test employed has been increase or diminution in weight, of the animal fed. Increase in weight may arise from secretion of fat, derived from the sugar and starch of plants. Diminution in weight may follow unusual activity, increasing the consumption of fat already present.

Because the experiments in but few instances have been made with substances whose moisture, nitrogen, &c., had been previously ascertained.

Because theoretical equivalents have been employed in conditions unequally suited to digestion. The same article of food, coarse or fine, fresh or prepared for easy digestion, yields unequal measures of nutrition.

Because the condition in which the animals were kept, was not noticed; whether they had more or less of labor to perform; whether they were pastured or stall-fed.

Because, lastly, as already intimated, the tendency to fat or flesh secretion, in animals of the same species, and even of the same variety, is subject to great variation.

Large pigs—Berkshire blood.—Timothy Brockway states in the *Boston Cultivator*, that Messrs. John & Samuel Foot, of Bradford, Ct., killed four pigs last fall, two of which were nine months and twenty days old, and the other two were nine months and twenty-eight days old, whose dressed weights were 401, 419, 423, 473 pounds. It is stated that they were got by Mr. Brockway's "Improved Berkshire" boar, which took the premium at the New Haven show in 1845. The pigs were all of one litter.

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Exportation of Apples.—Elihu Burritt urges the attention of the people of Maine to the raising of apples for foreign market, stating that apples which in Maine are made into cider, or fed to hogs, will command a dollar a bushel in England, the cost of sending them he estimates at twenty cents per bushel.

THE FARMER'S NOTE BOOK.

RENSSELAER INSTITUTE.—In calling attention to the announcement of the Rensselaer Institute, for the summer of 1847, it may not be inappropriate to make a few remarks in relation to the nature and specific characteristics of this institution.

The Institute is not, as is very frequently supposed by persons unacquainted with its peculiarities, a first, second, or third rate Academy or Grammar School; nor is it a seat of universal learning, in the ordinary acceptation of this phrase,—in other words, a College or American University; but it is, essentially, a *Polytechnic Institution*,—a school of theoretical and practical science, in which the study of the mathematical and physical sciences, natural history, chemistry, and geology, and the graphic arts, in connection with their practical applications to the arts, manufactures, and agriculture, constitutes the employment of its students. As such it was first organized by its munificent patron, —as such, it has been, and is to be continued.

The exercises at this Institution, in every stage of the student's progress, are, strictly, the study of subjects—not the study of authors. Text books are employed, more or less, in all parts of the course, for convenience in the arrangement of exercises; but full latitude is allowed, and encouragement directly given to the practice of consulting different authors, for the promotion of exactness no less than greater fullness and liberality of knowledge.

In every instance, a general lecture is first pronounced by a professor, after whom, each member of the class follows with a lecture on the same subject, prepared from his text-book, the reading of other authors, and the ideas gathered orally from his professor. Except, therefore, in a very limited degree, instruction by recitations constitutes no part of the system. The student is required to give a clear and extended exposition, according to his ability, of the subject brought before him, in the form of an *extemporaneous demonstrative or illustrative* lecture, the performance of which, no one, who has had any experience in such exercises, need be told, requires much careful preparation, and to be tolerable, must be based on real knowledge of the subject.

In the study of chemistry and experimental physics, after the general lecture by the professor, the students follow in order with their expositions; and besides the pronunciation of their lectures, are required to demonstrate or illustrate every proposition or principle, as it may require or admit by experiments, models, or diagrams, with their own hands.

The subjects embraced in botany, mineralogy, and geology, are studied in a similar manner. They are only pursued through the aid of direct examinations of specimens from the cabinets, or those derived immediately from the field; and as in chemistry and physics, so in these, with respect to the lectures of the students, they must be demonstrative expositions of the particular subject by appeal to the objects themselves. In this manner, a course of lectures is adapted to the science in question, in addition to which, each student makes, preserves, and arranges a collection of plants and minerals, in illustration of the flora, mineralogy, and geology of the vicinity of the Institute, by frequent excursions for these objects, into the surrounding country.

The subjects in practical mathematics and mechanics are pursued with direct reference to their applications to civil engineering, manufactures, and extensive operations generally, in which the exact sciences are more or less called into requisition. Each student is instructed in the construction, adjustments, and modes of using all the instruments employed; and he is not considered properly acquainted with his subject, until he can lead a party into the field, and conduct any of the required operations with tolerable credit to himself in respect of the accuracy of his results.

Agricultural chemistry has always received prominent attention at this Institution; and in this connection, it may be further remarked, in regard to the subjects of botany, chemistry, and geology, that special attention is given to the study of the germination and growth of plants, the organic functions of their several parts, and the processes of nutrition as influenced by natural agencies and artificial appliances, by comparisons of the different views of distinguished authors of original researches on these points, by repetitions of their more important experiments, and by special independent researches. For the promotion of these objects, students are instructed not only in the determination of the species and natural affinities of plants, and the discrimination of minerals by external characters, so far as may be practicable, but, also, in the chemical examination of organic products, of soils, and of the important fertilizing appliances, the marls, lime stones, &c.

From the foregoing remarks it will be seen that, independently of its occupancy of ground claimed by no other institution in the United States, the Institute is not less peculiar in its mode of conveying instruction to its students. Indeed, it may with some confidence be questioned, whether, in the last particular, it be paralleled by any other institution in the civilized world. The polytechnic schools of France and Prussia, have similar objects and similar courses of instruction, but in regard to the *mode* of study, the Rensselaer Institute is believed to stand alone. Nor would the mere possession of singularity in this respect be deemed a merit, were its condition simply that of being about to enter upon an untried experiment, for the present age is, perhaps, as prolific of unsuccessful as of successful adventure. Whatever, therefore, is asserted of the Institute is predicated, not of a doubtful issue, but of an experience of more than twenty years,—an experience, to which, the annals of the institution and the recollections of its friends, will, it is believed, fully justify an appeal. B.

AGRICULTURAL ADVANTAGES OF NELSON COUNTY, VA.—Nelson county is in the centre of the state, just at the base of the great Blue Ridge, on the eastern side—hilly, and finely watered, with soft free stone water, well timbered with the whole family of oaks, the poplar, and the chestnut, pine, hickory, walnut, beech, and many other kinds of timber. The soil is generally red, and when otherwise, a dark grey rich mould. As to health, if old Hygeia herself would take a habitation here below, this would be her head-quarters most undoubtedly.

Wheat, and everything cereal, grows as well here as any where. Indian corn cannot be excelled this side of Kentucky. No part of the state has produced more and better tobacco; and lastly, though far from the least, the grasses of all descriptions, as far as tried, *properly*, prove to be perfectly at home. The community is orderly, law-loving, and intelligent.

The James river and Kanawha canal sweeps the broadest side of the county, from whence to Richmond, is, by water, about 120 miles. Price of the lands, below the mountains, about one half of which is, or *would*

be, in market, at from $4 to $20 per acre, the meanest to best inclusive. The mountains, or the unimproved, i. e., the *uncleared*, fifty cents to one dollar per acre, and the improved from one to three dollars per acre, all of which is fine blue-grass land, and cannot be excelled for rye, oats, buckwheat, potatoes, flax, and turneps. Now, what more would a "northern" man want for a fortune?

This country, among other advantages, is thought to be peculiarly adapted to the growth of fine wool, and the authority is one that no northerner can dispute, as he beats the whole batch of them with his sales every year, at Lowell, in quantity, quality, and price. I mean Mr. Samuel Patterson, of Washington county, Pa. He has visited us twice in the last twelve months, examined our county in all its bearings, and pronounces it, *in his opinion*, to be the "promised land" for growers of fine wool sheep, and as a proof of his sincerity has bought land in Bedford, and is about to commence operations.

Mr. Chas. T. Botts, the editor of the "Southern Planter," in a late editorial, (and a very able one,) alleges, as one reason why the northern farmer does not emigrate more to this country, the *extravagance* of our people. May-be it is so, in Mr. Botts' locality and the country adjacent, for there is the metropolis and the *focus of the remains of Virginia aristocracy*. Not so, with us of the mountains or upland part of the state. No people are plainer or *disposed* to be more economical.

I will add that our late legislature waked up from a fifty years' nap of stultification, and commenced doing something for the state, by way of beginning a generous internal improvement system—the resolutions of '98, '99 to the contrary, notwithstanding. In a few years our good old mother will be "herself again." NELSON.
Nelson, Va., April, 1847. .....

TEA—HOW DRIED BY THE CHINESE.—The following account, by an eye witness, of the mode in which tea is gathered and prepared for market, by the Chinese, will doubtless be interesting to many of your readers. I extract it from a recent familiar letter to her parents, written by Mrs. CULBERTSON, wife of Rev. M. S. Culbertson, one of the missionaries of the Presbyterian Board, stationed at Ningpo, about twenty miles from which city the tea district visited, (on the 12th and 13th of May last,) is situated. This account, in addition to its being more full and definite than any other to which I am able to refer, is also valuable as showing important errors in some of the statements heretofore published, such as, that tea is so powerful a narcotic that the Chinese never venture to use it till at least a twelvemonth after it has been gathered—that the newly gathered leaves are first subjected to the steam of boiling water—that they are then dried in copper vessels, &c. It is important that such misstatements respecting the preparation of an article that is daily used by almost every family in our land, should be corrected. Yours truly, A. F.
Salem, N. Y., Feb., 1847.

* * * "On the side of the hill, we found women and children picking tea leaves from the shrub, which is as high as ordinary currant-bushes. [Perhaps I am mistaken here; Mr. C. thinks they were not over two feet high.] They are set a few feet from each other, and the leaves in form and size are very much like those of a wintergreen. A little farther on, we passed through a village of a thousand inhabitants, where we saw large quantities of tea drying on mats spread on the ground.

"But I am forgetting to tell you what I presume will be more interesting to *you* than anything else I can write about—the process of curing the tea. It is very simple, and the idea which some of you "outside barbarians" entertain, that tea is dried on *copper* is entirely incorrect. It is mostly picked from the bushes by women and children, into baskets, one person being able to pick about thirty "cattis" (or forty pounds) in a day. It is then spread on mats, and dried an hour or more in the sun, previously however, having some of the juice squeezed out, and the leaves somewhat curled, by rubbing them with the hand over a rough kind of matting, which lets the juice run off. After drying in the sun, it is ready to be "fired," which is an operation we watched some time, with much interest. A dozen or more pounds are put into a kind of kettle, resembling a potash kettle, except that it is low on the front side, and runs up some two feet behind. A man stands in front, and keeps the tea constantly stirring while being heated, which he accomplishes by thrusting his arms as high as his elbows under the hot tea, and giving it a toss upwards against the back of the kettle. This operation is kept up two or three hours, by two men, who constantly relieve each other. When this process is finished, it is ready for market, but tea that is intended for exportation is again fired slightly by the tea merchants before being shipped. We drank some that was growing on the bushes the day before, and might have obtained some that had been gathered and cured that day. This tea is of a fine quality, and is known as the "Tau-bah-san tea, from the name of the mountain on which it grows. Some of the finest of it is prepared for the Emperor. It is the *green tea* of which I have been writing. The *black*, it may be, is subjected to a process in some respects different." .....

USE OF LIME AS A MANURE IN NEW JERSEY.—About from 1825 to '30, the farmers of this region began to learn that lime would change the soil of our naturally sterile hills, to the strongest kind of corn and wheat land; and indeed no one but an eye witness could believe the change that it has already wrought. Before we were aware of its power, some applied too much, and injured the land for two or three years; but by deep plowing and bringing up and mixing the clay with the soil, and growing clover, to equalize the proportion of vegetable matter with the lime, &c., a powerful wheat soil was formed. Those who say that every soil has lime enough naturally, should visit Morris. There they may see fields of thirty to fifty acres, on which nothing grows but what we call "poverty grass," and sassafras bushes, and in the one adjoining, as noble crops of corn, wheat, or oats, as any reasonable man would wish to see. And this too, is so certainly attributable to the lime, that all now use it, even the old Germans, whose prejudices have deprived them of its beneficial effects 20 years or more.

Any quantity of lime can be obtained at the kilns, for six to eight cents a bushel, every bushel of which, when slaked, will average double the quantity. I find by careful experiment, that the best manner of applying it, and in which it has the most immediate effect, is to place it in heaps of from 100 to 200 bushels, as may be most convenient, and leave it to pulverize by the action of the air and rain for two or three months. By this time it will become a carbonate, and is fit to apply to any crop, at the rate of 30 to 50 bushels per acre, or rather, double that quantity, it being slaked. Of course the quality of the soil must regulate the quantity; a good soil bearing a larger quantity than a poor one.

I have seen lime in the above condition, put upon corn hills before the corn was up, (a quart to the hill,) and strange as it may seem to those unacquainted with lime, except in its caustic state, with marked good effect, while the gaping crowd predicted ruin to the crop, not knowing the difference between it and fresh lime.

I have tried it fresh from the kiln, (a light dressing of 30 bushels to the acre,) harrowing it in, and this trifle, on account of its caustic property, caused a difference for the worse that could be seen a mile—other corn, unlimed, standing side by side. But its good effect *never* fails when applied in the former state.

You may take the poorest soil in New Jersey, and in three years, (by an interval of one year between two dressings of forty bushels to the acre,) can make it produce good corn. The manner is, first apply one dressing, and plow it in well and deeply; then plant corn and till it thoroughly, and the crop will be from 30 to 40 bushels of ears to the acre. The next April we sow oats, two bushels to the acre, and apply the other dressing of lime on the surface, harrowing in thoroughly with the oats, and "seeding down" with one harrowing, after sowing the clover. We think six quarts of clover-seed sufficient to the acre.

The oats, with this treatment, are generally a fair average crop, and the clover, soon after the oats are taken off completely fills the stubble, and the following summer should not be pastured, except by hogs after it is in bloom. Thus a great quantity of vegetable matter will be upon the surface for the next years' crop, which will be all you can wish. One important item I have omitted, which is 1½ bushel gypsum, sown broadcast to the acre, on the clover. This should be done in March.

Morris is rich in iron ore, which in both quantity and quality is unsurpassed. One mine of great value, is 300 feet deep, which, in a comparatively new country, is a deep hole. There is no doubt, I think, that the mines of this county could supply all the furnaces and forges in the United States. JAMES HAINES. *Chester N. J., Feb.* 18, 1847.

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WESTERN FARMING.—In your February number I noticed some extracts from Dr. Elliott's letters in regard to "Western Farming," and observed that the large farm of Mr. Strawn, or "Stron," of Morgan Co., Ill., is alluded to. The owner of that farm, a *Napoleon* among farmers, deserves a more extended notice than a few lines stating the size of his farm. It is indeed true that he cultivates from seven to eight thousand acres, and often winters three thousand head of cattle. But he is more than this indicates; he is an *original*, fashioned by nature's self. How, think you, is this vast herd of stock annually collected? At some city market, by a gentleman on horseback, with gloves on? Why, no, sirs! This same Strawn, in person, by day and night, scours the whole country for an hundred miles in every direction, to secure them. He often rides all night, and so rarely does he lodge more than four hours in a night, during his buying season, it is said by those who know him best, that although he carries large sums about him, the robbers never know *where* to catch him. To-day, or this evening, he is here, while to-morrow's first sun finds him fifty miles hence. He knows all the short cuts and by-paths of the country as well as your compositor knows his types.

Numerous are the tales that are told of his dispatch, his promptness, and his fairness in doing business. In the dead of night he has been known to rout a farmer from his bed, purchase his stock of twenty or thirty steers, and by daylight be purchasing forty miles from there. It is noted of him that his judgment is as accurate as it is rapid. As soon as his eye is fixed upon a drove of steers, his judgment is formed, his price is set, and the next minute it is offered. He never banters, makes no second proposal; but if the first is not accepted, goes further for his stock.

They who know him find no difficulty in dealing with him, for it is notorious that his offers are always made fully up to the value of the drove; and the manner in which he met the butchers of St. Louis, some three years since, was a corner worthy a Wall-st. broker.

The butchers had been buying beef at the low price of $2 per 100 lbs., on the hoof, when Strawn made his appearance with a drove of some size, and the market being now glutted, no one would offer him more than $1.50. He waited an entire day, but nothing higher was offered. The next morning, as usual, the butchers came out to purchase, but Strawn's cattle were still held at $2. They went to the other droves; they were sold. Who had bought them? Strawn, at $2. They sent into the country. Every drove they met was Strawn's. His buyers had been out all night, on every road from the city, and had bought all the cattle on their way to market, at $2 per 100 lbs. Thus were the butchers finally compelled to buy of Strawn and pay his price, $2.

Whether the blue grass *suits* our prairies, depends on what that word means. It is notorious that it encroaches in a great degree upon all prairie farms as they become older, and all our bottoms and lands adjacent to towns are more or less covered by it, until the white clover taking its turn, uproots and drives it off.

The prairie grass is good feed from the 15th April or first May to the 1st November. Then sheep need about a bushel of corn to the hundred per day, and will pick well enough at the roots of the grass until the 15th December to 1st January. Then they must be fed hay with grain, (I mean prairie hay,) as before, until the grass starts. During the winter, the prairie grass is so wiry as to be uneatable by any stock that I know of. I keep upwards of 2000 sheep, and have fed them in three different ways, viz., on prairie grass till the 1st November, then blue grass till 15th December; then a ton of hay and ten bushels corn per day to 1000, till 1st March; then blue grass and a bushel of corn per 100 till the 20th March; then blue grass alone till the prairie grass springs. The second mode is described above, and the third consists of corn and corn-fodder cut up at the root while glazing, and well cured. This, fed at the rate of three bushels per day to the 100 head, from the failing to the springing of the prairie grass.

This last I consider the most objectionable, as the first is the most advantageous method which I know of for this country. Winter lambs don't do well with us A SUCKER IN SUCKERDOM. *Ottawa, Ill.*, 1847.

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CANADA THISTLES.—J. B., of Oneonta, N. Y., gives us his mode of destroying Canada thistles. He says—"Salt them—use salt freely, and your cattle and horses will gnaw and stamp them to death. If some thistles appear the second year, repeat the process, knowing that the salt is not wasted if a little is 'trodden under foot of men' or of beasts."

.....

ACTION OF LIME.—There is probably something not generally understood in regard to the operation of lime. Whether it promotes the fermentation of vegetable substances, is a question which has been much discussed. We would venture to suggest that in this respect its effect may depend on the state in which it is used. For instance, if it is taken fresh from the kiln and immediately incorporated with a mass of vegetable materials, and there slaked, would not the heat generated in slaking, bring on a fermentation, which, being once commenced, would pass through the heap?

In the (London) *Farmer's Magazine*, we find an able article on the "Theory and Practical Use of Lime," by JOHN TOWERS, a well-known writer on agricultural subjects, and a chemist of distinction. The conclusion to which Mr. T. arrives in regard to the effect of lime on vegetable matter, is thus given:

"If applied to green vegetables *quite hot from the kiln*, it will destroy the tissue and carbonize the substance, itself being brought into a state of mild lime or chalk."

Some of Mr. TOWERS' other conclusions in regard to lime are as follows:

"According to high chemical authority, it is capable to liberate potassa from clay and granite rocks, and to

set it at liberty from its combination with flint as an insoluble silicate of potassa."*

"It is a mistake to suppose that quick-lime renders vegetable and animal remains soluble. These substances are partially soluble as we have seen in the three alkalies; but the precipitate formed by the addition of lime is not soluble, or at any rate, it is so far fixed that it will remain long quiescent in the ground, from which it can only be taken up in very small quantities and by slow degrees, according to the capacity of the vegetable for such food."

The operation of lime was discussed at one of the weekly agricultural meetings at Boston, and the principal facts there brought out, agree with the theory of Mr. TOWERS.

Mr. EARLE, (editor of the *Worcester Spy*,) observed that he thought lime was frequently misapplied; it was sometimes mixed with stable manure. He had himself taken half a dozen loads of manure and mixed a cask of lime with it, and he thought he had never seen so little effect from any manure. He supposed the lime must have united with the base of the ammonia in the manure and liberated it; it was thus lost. He spoke of the effect of lime on animal matter. "Quick-lime absorbs gelatine, and is then insoluble. When he was a lad it was a common practice to apply quick-lime to heal a cut in the finger, or other parts. In such cases you may soak this coating in water without effect; by uniting with the animal matter the lime is insoluble."

Mr. PORTER, of Danvers, remarked that he had mixed a number of casks of lime with peat muck, and at the same time had mixed the same value of ashes with another heap of the same size. The heap which contained the ashes began to heat soon, but the one with lime in it remained cold. [It is not stated whether the lime was put with the peat before it was slaked.] Both heaps were spread on a potato field, but the result was much in favor of the one which contained the ashes.

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HOW TO PREVENT THE BEE-MOTH OR MILLER.—Thinking it may be beneficial to some of your readers who keep bees, I will briefly give you my mode of managing bees for the five past years.

I have the interior of my hives of a size sufficient to contain about one bushel, and largest at the bottom. When the bees begin to work and increase in the spring, so that they need more room, I raise up the hive about three-fourths of an inch, by putting under a block at each corner of the hive, and then set a box on the back tight to the hive and bottom-board; also one on each side, with holes in the bottom edge of the boxes, to correspond with the holes under the hive, so that the bees can enter the boxes directly from the bottom board. In the course of two weeks I add two more on the top of the hive, making five boxes, which should contain at least as much as the interior of the hive, and exchange them as fast as they are filled. In this way the bees keep to work, so that there is none which lay on the outside of the hive; and I find that in a good honey-making season, they will fill the five boxes about as soon as they will two on the top of the hive. In this way, I have a hive and boxes that contains two bushels or over, and I find that the colonies will increase enough to occupy a hive of this size as well as they will a one bushel hive, and when the bees begin to decrease in the latter part of the season, I begin to remove my boxes, and so continue to do until I take them all away, and let the hive down to the bottom board again.

I never have known of a swarm of bees being destroyed by the bee-moth if the hive was kept full of bees, to guard the comb, and this cannot be done in any other way than by taking away the room and comb as the bees decrease, so that the bees will be numerous enough upon the comb to keep the moth out in the spring and fall. If I want my bees to swarm, when they have increased enough to spare a swarm, and leave enough in the old hive to guard the comb and perform their labors, I remove all the boxes, and let the bees all into the centre of the hive, and I have never had them fail of swarming within two days after, if the weather was good. I then return what boxes they need, and so add the boxes as the bees increase. But it is rather inconvenient to manage them in this way, unless your hive is rightly calculated for it. A. COLTON. *Pittsfield, Vt., April* 6, 1847.

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THE BARBERRY QUESTION.—We have received several communications in reference to the influence of the barberry in blighting grain. We wish to treat all our correspondents with perfect fairness, but we cannot think the interest of the public would be promoted by a farther discussion of this subject in our columns, and we are therefore under the necessity of disposing of the articles on hand by the following summary:

In our number for December last, we gave a communication from Mr. J. G. CLARKE, of Kingston, R. I., in which the theory set forth in reference to the supposed blight of a field of rye by the shrub—is "that the barberry and the rye were in blossom at the same time, and the pollen of the barberry was blown by the wind on the open blossom of the rye, thus causing blight."

Mr. SAMUEL HAYDEN, of Windsor, Ct., sends us a communication in which he says—"My opinion is, and has been for years, that Mr. Clarke's theory in regard to the blight taking place through the influence of the pollen, when both [the grain and the barberry,] are in blossom at once, is correct, and that to produce the greatest amount of mischief the wind should be in the right direction at the proper time," &c. He then cites several cases which he thinks support this theory. But is it a settled point that the barberry and rye or wheat, do, ordinarily, come into bloom at the same time? A correspondent, who is an excellent botanist and a close observer, writes us—

"Now, the fact is, the barberry is out of flower several weeks before either rye or wheat comes into blossom; and the pollen, thus clearly proving an *alibi*, is fairly entitled to an *acquittal*."

From Mr. S. BALDWIN, of New Haven, Ct., we have a very elaborate and well written article, which we should be pleased to give in detail, did not the rule which we have thought proper to adopt, oblige us to exclude it. In a very interesting manner, he gives the results of his observations for a period of more than seventy years. He refers to an article written by the late Dr. DWIGHT, President of Yale College, written in answer to some queries which were propounded in 1800, by the "Connecticut Academy of Arts and Sciences," with a view to procuring materials for a statistical history of the state. Dr. D. states that in 1796, the town of New Haven appropriated $200 for the purpose of destroying barberry bushes within its limits, and that individuals are supposed to have expended as much more. This, it is stated, was done, because from examination, the evidence that the bushes had an injurious influence, was deemed conclusive. It was supposed by Dr. D., that the blight was occasioned by the wind carrying the "effluvia" and the "decayed blossoms" over the field; and he states that wherever they fell, the grain was blasted.

As a further evidence that the idea of the deleterious influence of this shrub has long prevailed, Mr. BALDWIN cites a statute of Connecticut, passed in May, 1826, by which provision was made for the eradication of bar

* Dr. DAUBEN observes that "quick-lime, mixed with pounded granite, speedily liberates the contained alkali, and as many of the clays and clay-stones, which compose the bulk of several rock formations in secondary and tertiary districts are derived from granitic rocks, we cannot doubt that the action of quick-lime upon the latter would be of analogous description."

berry bushes. This act, he informs, us, "is still in force, substantially, as originally enacted." Mr. HAYDEN, in his communication before spoken of, also alludes to this act.

The final conclusion of Mr. B., is, that—"the barberry will sometimes produce blast upon wheat and rye; particularly when at a critical time, a favorable wind shall carry the strong effluvia from the blossoms of the bush directly upon the grain. At other times it may be harmless."

Some of the cases cited by Mr. BALDWIN, are singular enough, it is true; but if blight in the cases was actually caused by the barberry, why has it not produced the same effect in other instances, where, for aught we can see, the same causes existed? We have several times known grain to be as much exposed to the influence of the barberry as in any of the cases referred to by Mr. B.,—the bushes growing in full vigor, blossoming, and bearing fruit, yet no ill consequences occurred, the grain being perfect.

Mr. WARREN HECOX, of Skaneateles, in the 7th vol. of the Cultivator, p. 175, states that for the purpose of testing this question, he transplanted a barberry bush to the midst of his wheat field. In relation to the result, he speaks as follows:

"On my wheat ripening, it proved a good crop of plump wheat, and no way injured by the barberry in any part; *the heads of wheat which shot up in the top and among the branches, some of which rested or lay reclined on the leaves of the bushes, were equally plump and good as any in the field.* The bush was green and thrifty. Some of the branches or limbs had grown ten or twelve inches; there was a sprinkling of oats in the wheat, some within five feet of the barberry, as plump and good as ever I saw. There was an acre of barley in the same field, twelve or fifteen rods distant, as good and plump as any I ever had. My neighbor's field of winter wheat, only twenty-five rods distant, not at all affected or injured, but plump and good."

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CHESTER COUNTY PIGS.—I send you the weight of some hogs of the Chester County breed, so called, which have been in such great demand in Pennsylvania and New Jersey, and some of which have been sent to a great distance. Franklin Comly, Esq., slaughtered one on the twenty-fifth of February, which weighed 678 pounds; William S. Doran slaughtered one in January, which weighed 640 pounds; William Janney slaughtered one in February, which weighed 704 pounds; and Levi Buckman, Esq., slaughtered one March 1st, which weighed 707 pounds; making an average of 682 pounds each. Those hogs were kept for breeding purposes, and not for making *brag* hogs. The three first were not altered until the spring service was over, and the last one was a breeding sow which raised a litter of pigs in August last, after which she was fed moderately until she was slaughtered.

But the question will arise in the minds of some, whether such large hogs are the most profitable to the farmer. Some would say not, and my own opinion is that a smaller boned hog, that would not be near as great a consumer, and which would weigh from three to four hundred pounds at fifteen months old, with ordinary care, would be of more profit to the laboring class of community than the larger breeds. For instance, the Chester county "grass hogs," which have been in great demand through Chester, Philadelphia, and Bucks counties, will, with proper care through the winter,—with an allowance of two quarts of corn per day to each pig that would dress one hundred pounds, keep fat enough for the knife at any time from two months to eighteen months old, and with such treatment will weigh from three hundred to four hundred and fifty pounds at the above age. They are all pure white, short legged, with small head and ears, and of as handsome form as the Berkshires. PLOUGHBOY. *Newton, Pa., March* 22, 1847.

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DEPRECIATION OF LANDS IN WESTERN NEW-YORK.—For some years past, improved farms in several of the western counties of this state, have been offered for sale in large numbers, and at surprisingly low prices. To sell out has been the all-pervading desire among farmers, and seldom have they let an opportunity pass without embracing it. Their places have generally been supplied by Germans, who now constitute a considerable portion of the population of Niagara, Erie, and Chautauque counties. During every month of the year they are flocking here from Europe, and spreading on every side. In one town, where ten years ago there was a flourishing and homogeneous community of yankees, constituting a large congregation with a settled pastor, the Germans have displaced nearly every family, and have now the entire control.

The reasons for this general emigration are various, but I will name three that have had much influence.

1. The original settlers in these counties purchased their lands of the Holland Company, mostly upon a credit; and as they began in debt, and had to clear a dense forest, and support their families, they continued in debt, and were likely to thus continue, unless they could sell out their improvements.

2. The boundless and fertile prairies and wheat lands of the west were in various ways brought to the view of their imagination, and made an object of strong desire.

3. The facilities of lake navigation have, in effect, nearly equalized the value of very large portions of government land at the west with the improved farms of this state. To show how this is effected, let us consider the single article of wheat—the article from the sale of which most farmers expect to become rich. It is ascertained that the prairies at the west, which may be plowed and sowed to wheat the first year that they are taken possession of, will yield, on an average, about twice the number of bushels per acre, that can be realized from the lands in Western New-York. That wheat, when carried to market, obtains nearly as high price as is given here. The difference in price arises principally from the charge of freight through the lakes.

From the western end of Lake Erie, say from Detroit, Toledo, and Sandusky, the charge per bushel for bringing wheat to Buffalo, is from 3 to 5 cents; and from the western and southern shore of Lake Michigan, as Milwaukie, Racine, Southport, Chicago, and Michigan city, the charges for freight are from four to twelve cents per bushel,—eight cents being about the average. During the summer, between the hurry and crowd of spring and fall navigation, wheat is brought from those ports to Buffalo at the lowest rates. This shows at once the value of lands in that region. If land in Michigan, Wisconsin, and northern Illinois, and Indiana, costing but $1.25 per acre, will yield from 25 to 30 bushels of wheat per acre, and that wheat will sell for as much there within a few cents, as in Buffalo, it is no wonder that farmers are anxious to sell out here and remove thither.

But, the inquiry may be raised, "are not farmers there obliged to carry their wheat a long distance before they reach a market?" Not farther than multitudes who live in this state. Many bring wheat and Barley to Buffalo from places 20 to 30 miles distant; and apples, potatoes, pork, butter, cheese, oats, lumber, &c., are brought here by wagons from 40 to 60 miles. In northern Illinois and Wisconsin, farmers generally find a market for their surplus produce much nearer home; though at Chicago, where 400 wagons are sometimes seen in a day, loaded with wheat from the country, some of them come a distance of 40 miles or more. Agents are stationed there as well as here to

make large purchases of wheat for eastern manufacturers, and there is no reason why it should bear a higher price here than there, except the freight through the lakes.

The above are some of the reasons why the population of western New-York has changed within a few years, and why land has been depreciating in value. That this depreciation must become general seems almost certain. Western competition is too strong for us; we shall be compelled to submit to harder work and poorer returns, or to gather up our effects and launch out in search of a western home. H. A. P. *Buffalo, Jan.* 1, 1847.

[NOTE.—We hope the farmers of the "Empire state" will not be frightened by our friend's opinions and predictions. If our lands are properly managed, there is no danger to be apprehended from western competition. We think our correspondent over-estimates the yield of wheat on the prairies, as compared with that of the wheat lands of western New-York—we do not agree to the statement that the former will produce "on an average about twice the number of bushels" of the latter. Instead of the yield of wheat on the prairies being so great as is estimated, "the first year they are taken possession of," we had supposed it was generally less than the average of our good wheat lands. And as to distance of transportation, we think it is more against the farmers of the western states than is allowed. If it had been said that they were frequently obliged to transport their wheat from 60 to 100 miles, a more correct idea of the facts would have been conveyed. These remarks are not made to disparage the west, but to correct what we believe to be an error, viz, that the farmers of the east should remove to the west to avoid an injurious competition. It is admitted, however, that there are circumstances which may render it expedient for an eastern farmer to emigrate.—EDS.]

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PREPARATION OF SEED WHEAT.—I have of late been reading in the Cultivator and several other papers, accounts respecting the preparation of seed wheat. Some use salt and lime, but in different ways. I practiced using salt and lime for that purpose for about thirty years, but in a different, and I think a better way than I have seen described. My method was this: Take, say, a bushel of wheat, put it into a tub, and take from two to four quarts of well slaked lime, and one-half pint of salt; put them into a kettle with water sufficient to wet the wheat. Boil it until the salt is dissolved. Then turn it on the wheat, while boiling—the hotter the better, stirring the wheat continually until all is besmeared. Do not pour in so much as to have it stand in the bottom of the tub. Let it stand from 24 to 48 hours, without stirring; then sow it. It is an infallible remedy for smut, and will increase the product enough to pay all the expense.

CARROTS.—I will say a few words about carrots. My story beats all the stories I have heard; but old men are apt to tell large stories, and I am betwixt 80 and 90 years of age. But I am able to prove what I state. Some twenty years since, I undertook to raise carrots, and finding it profitable, determined to pursue it; but about that time I lost my health, and my son took the farm. There was nothing more done about it until 1845, when he sowed a piece, some with white and some with orange carrots, and when we dug them we measured the ground and the carrots, and the yield was at the rate of 1,800 bushels to the acre, and the weight over 42 tons. JONA. WHITNEY. *Tunbridge, Vt., April* 24, 1847.

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YIELD OF BUTTER.—I noticed in the Cultivator for 1846, p. 157, an account of the yield of butter from a dairy of ten cows, being an average of 211¾ lbs. to each cow. I kept in 1845, four native cows, which constituted my whole dairy. Three of them were of middling quality as milkers, and the fourth one was below middling. From these four cows I fattened two calves killed at four weeks old, and reared two other calves on the milk of the cows. We made during the season 1056 lbs. of butter, besides furnishing milk for a family of eight persons. This would be an average of 264 lbs. to each cow. The cows were kept as follows: In winter they were fed upon hay, generally three times a day, in some of the coldest weather five times a day. The hay, in the coldest weather was not always of the best quality. They ran when they pleased to a large stack of wheat straw in the yard. They were not stabled, but had an open shed for shelter, and no extra feed was given them except a slop once a day after calving, till turned to grass, of mill-shorts. My pasture was good. It consisted of about five acres; the feed a beautiful mixture of early clover, timothy, and some of the finer grasses. It had a light top-dressing of plaster early in spring. The cows were kept in this pasture, with the exception of a few days, till late in the fall, though the drouth was such that our mowing fields produced but little after-feed. The pasture had a good running brook crossing one corner. Other stock was turned in and withdrawn as occasion required, to keep the feed about right. I would not pretend that this dairy product cannot be beat, but I think it is a good yield considering the feed, and that the cows were small, and not high bred. J. WILSON. *Salina, N. Y.*

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SOILS WHICH RUN AND BAKE.—Reading in the Cultivator of 1846, I met with an inquiry on page 110, about soils that "run and bake;" and not having found an answer to that question till now, I will try to answer it, as far as I am able by my experience in Germany.

It seems to me there are three points for consideration: The nature of the soil, the crops fit for its cultivation, and the manner of this cultivation. Soil that runs and bakes, is in Germany, and probably here also, a heavy clay, with an impenetrable subsoil; color generally black when moist, and light grey when dry.

The crops raised on such soil ought to be wheat, oats, and red clover. Only mixing this soil with lighter soils, with sand or muck, can make it suitable for the cultivation of roots and barley. I have no experience how Indian corn will do on it.

Wheat may follow after a thorough fallow and four or five times plowing, and after a half fallow on clover stubble. Oats can follow wheat and the clover be sown with the oats. A division of the field in three parts, and a rotation of fallow, clover, wheat, and oats, will prove expedient, it not being prudent to raise red clover every third year. Breaking up the stubble of oats in the fall, with a common plow, not very deep, then cross-plowing very deep before winter with the subsoil plow, repeating the last named operation during the next season, as often weeds are running up, plowing only when the soil is in middle condition, not too wet, and not too dry, using harrow and roller before each plowing, will render the soil mellow and fine, and insure a good crop of wheat.

The right time to plow this soil, is when, after some dry weather, there follows a good rain during night. Then the farmer ought to bring all his forces to the field, and harrow the whole, if possible, before noon, with a strong harrow, and after the noon sun has dried the ground, roll it. If it does not rain again, and the weeds spring up in good number in a short time, it may be plowed any fine day. If the field is to be manured with stable manure, this may be plowed under at the second plowing, before winter, but not with the subsoil plow.

If the wheat follows the clover, then plow the clover stubble under in August, after the second clover crop,

then cross plow with the subsoil plow in September, and sow the wheat on this furrow. For oats, the wheat stubble wants to be plowed under, not deep, as soon as the wheat is harvested, and the ground should be cross-plowed before winter with the subsoil plow, and if the land is generally wet, in small beds of 16 to 20 furrows. In spring, as soon as the frost is out of the ground, sow the oats.

A farmer who has only this kind of soil, wants more teams and plows than the farmer owning another kind of soil; to be able to perform a great amount of plowing in a given time. Then his chance to plow with success is within narrow limits. He must provide other work for his team, to use it to his advantage, when the ground will not admit of being plowed.

In general, I wish to see the subsoil plow more used in this country, knowing its superiority in every respect by experience. WM. WALLIS. *Toledo, Ohio, March 28, 1847.*

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CUTTING TIMBER.—In the March number of the Cultivator for 1846, is an article relating to woodlands. The writer says he "had the presumptive folly to cut several trees of this timber, [chestnut,] in the freezing and thawing month of March," and that "not a single sprout ever sprung up," &c. Now it happened that we were cutting chestnut timber, (which was frozen hard,) the 7th of March, and had just felled the last tree when we received the Cultivator. On reading the piece referred to, we felt sorry we had not cut it earlier, as it was a piece we wished to have sprout and grow up again; but what was our disappointment to find that they sprouted in due time, and grew from eight to ten feet in height the same season. It seems the result was opposite to the one referred to. What could make the difference? AGRICOLA. *Enfield, Ct., March, 1847.*

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SOILING WORK HORSES AND OXEN.—Whatever may be the decision in regard to the expediency of soiling milch cows and growing stock, we think there can be no doubt as to the propriety of keeping up work horses and oxen, in all situations where they are required to labor constantly. The advantages are, first, a saving of time. When the animals are turned to pasture, considerable time is unavoidably occupied in driving them to and fro to be yoked or harnessed. Second, it is better for the stock, they have more time to rest, are more uniformly supplied with food, and are in better condition to labor. Horses are liable to *slaver* when running at pasture, especially the second growth of either red or white clover; and from this cause they frequently become unhealthy and poor. By keeping them up this is avoided. If it becomes necessary to feed clover of the second growth, it should be dried or wilted, and some clean dry straw or old hay cut and mixed with it. Third, the quantity of manure that may be made by keeping the animals up, will more than pay the extra labor in bringing the food, &c. Let a due supply of muck or materials for absorbing the urine, be daily used in such a way that none shall be wasted.

Until green green food can be had, the best of hay, with a little meal, or grain in some form, should be fed. Rye, cut while it is tender, may be first used; clover may come in next, and the different grasses afterwards. Rich, moist ground, properly swarded, will throw up such a rapid growth that it may be cut five or six times in the season. .....

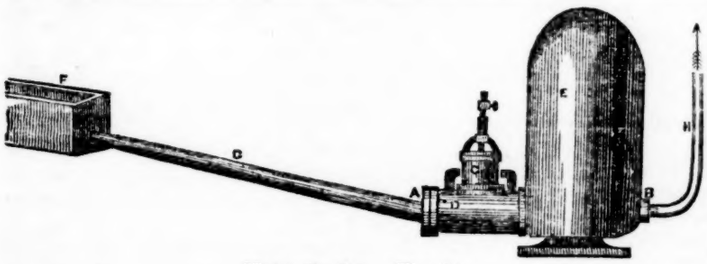
FARMING ON THIRTY-FIVE ACRES OF LAND.—J. G. CHADSEY, of Wickford, R. I., states to the officers of the Rhode Island Society for the encouragement of Domestic Industry, that several years ago he purchased thirty-five acres of poor land, for which, it being near the village, he paid the large sum of three thousand and fifty dollars. Only twenty-five acres of it are "tillage-able, including three acres of meadow not plowed. The remainder is made up of hills and holes, marsh, and beach, with a small strip of wood-land." The arable land is described as uneven, with a gravelly soil, much encumbered with small stones. It had been much worn down by repeated croppings without manure. He let it on shares, but got such poor returns that he was sick of his purchase. Finding that he could neither sell nor rent it, he came to the conclusion to try farming himself, though he had "*done nothing at it for nearly forty years:*" but as a "substitute for experience," he says he took an "*agricultural paper.*" He began cultivating it himself in 1840. He divided the tillage-land into six fields, "from three to four acres each, a new one to be taken up every year, and after taking off three crops, let it lie three years in grass." About two were appropriated to root crops and garden vegetables, which are plowed every year.

His success has been such, that land, which seven years ago, would not rent for four per cent., *now pays twenty per cent., after deducting all expenses.* He makes the following statement in regard to the products and profits of his farm for the year 1846:

10 acres mowing, 19 tons hay, at $12,.....		$228 00
3 acres corn, 124½ bushels sound, at 80 cts., and 9 bushels offal, at 40 cts.....		103 20
Corn fodder, $25, and pumpkins, $4.50,.....		29 50
3¾ acres rye, 77 bushels, at 80 cts., and straw sold, $24.81,.....		86 41
2¾ acres potatoes, 348 bushels, at 37½ cts., and 50 bushels small, at 20 cts.....		140 50
367 bushels onions, at 50 cts., ...	$183 50	
836 do. carrots, nearly all sold at 19 cts.,.....	158 84	
48 do parsneps, do., at 33⅓ cts.,...	16 00	
6 pounds onion seed, and 3 pounds carrot seed,.....	8 00	
Peppers and sage sold, ...	41 88	
Produce of 1 acre and 125 square rods,.....		408 22
½ acre summer vegetables, mostly used in family—sold, ...		7 69
Salt grass sold, standing,.....		24 00
Milk sold, ...		47 39
Rent received for two gardens,.....		6 50
Milk, butter, and summer vegetables used in family,.....		35 00
		$1116 41
EXPENSES.—Paid for labor,.....	$182 62	
Board of labor, ...	90 00	
Molasses for drink, 20 gallons, at 30 cts., ...	6 00	
Manure purchased, and materials for the same,.....	81 46	
Seeds of different kinds,.....	28 77	
Wear and tear of farming utensils,.	25 00	
Taxes, ...	11 81	
Labor done by myself,.....	50 00	
Cost of cultivation, ...		475 66
Cost of land, $3050; profits 20¼ per cent for use of land,.....		640 75

Mr. CHADSEY states that he hires all his help except the "little" he does himself. He states that he made 917 pounds pork, and 560 pounds beef, which are not included in the account, as they were fattened on part of the produce before estimated. His stock, he says, consists of two cows and a horse. He buys manure from the village. With the horse, he does all the "team work" except breaking up the land. His products for the year 1845, amounted to $913; his expenses were $368; profits $555. .....

FARNHAM, BROWN & CO.'S HYDRAULIC RAM.—Machinery for raising water has been known for a



Hydraulic Ram.—Fig. 31.

long time; it is not, however, till within a comparatively short period, that an apparatus having a self-acting power has been brought into use. The machine invented in 1796, by MONTGOLFIER, a Frenchman, is believed to have been the first of this kind which was very extensively adopted. Since that time, several patents have been taken out both in England and this country, for inventions designed for this purpose.

The machine above represented, is thought to be one of the most simple and effective that has been used. In reference to it, the manufacturers say—"it costs but little, and is never out of order. Any spring, or small stream, affording a fall of from one foot to ten feet, may be used to elevate a portion of the water, and thus a fountain of water be secured at the point required." The height to which the water can be raised, is estimated at thirty times the fall. The following rule for calculating the amount of water which a machine will raise in a given time, is taken from a communication by H. P. M. BIRKINBINE, in the *Farmers' Cabinet*.

"Measure the amount of spring or brook discharges in a given time. Ascertain the greatest amount of head or fall that can be obtained, and the elevation to which the water is to be raised. Then divide the elevation by the head or fall, and the amount of water by the quotient. Deduct thirty per cent. from this result, and it will give the amount delivered in the given time. For example, suppose an elevation of 60 feet, with a fall of 5 feet. The supply 4 gallons per minute, or 5760 gallons per day:

Then $\frac{60}{5} = 12$; then $\frac{5760}{12} = 480$: and 480 — 30 per cent. = 336 gallons raised per day."

If the machine is properly made and put up, it is said this rule may be depended on.

EXPLANATION OF THE CUT.—*A*, *B*, *C*, *D*, *E*, the ram. *F*, spring. *G*, pipe from spring to ram. *H*, pipe conveying water to house or barn.

The machine above described is manufactured by FARNHAM, BROWN & Co., Philadelphia, and is for sale at the AGRICULTURAL WAREHOUSE, Albany—price $25.

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SHEEP HUSBANDRY.—Many farmers in this section are convinced by actual experience, that there is no crop which we raise at so little expense, and is of so much value to feed to sheep, as carrots. Sheep fed on them will attain a better size, and are more healthy than when fed on grain. Aside from hay, we feed nothing to store sheep in winter so well adapted to their wants, as this vegetable. Half carrots, with grain, is better than all grain for sheep or horses, to fat them. Several thousand bushels were raised in this county last season, for the purpose of feeding sheep, and I presume the quantity will be doubled the coming year.

With us, we make it more profitable to raise sheep than cattle; even when we sell our wool as low as twenty-five cents per pound, the average profits on sheep exceed those on cattle. In fact, I was about to say that the income from the sales of the *increase* of our sheep about equalled that of cattle, aside from the wool. The common flocks of this district yield annually about three pounds of wool per head. The annual average price of store sheep is over one dollar per head; fat sheep over one dollar and a half. The sales of our wool occur every year; our cattle once in two or three years. For instance, we keep our calves till they are three years old, then sell them in the fall. From our sales we lay out one-fourth, or one-third of the money to re-stock.

The wealthiest man in this state, once remarked, as as we were discussing the relative merits of raising sheep or cattle, "that some of our graziers did not see the difference between an *aunual* income, and income once in *two* or *three years*."

Another farmer who lived in this town, with the exception of three or four years in about fifty, sold his wool invariably for twenty-five cents per pound. In the meantime, his flock averaged about 550, and stock of cattle over sixty. His two year old cattle sold at from $10 to $12; three years old, from $17 to $20. I have frequently heard him say that his clean and easy money was made on his wool—that the cattle cost all that he got for them; the growth and increase of the sheep nearly paid for their keep.

If we bring into the account the improvement of our farms, to stocking either sheep or cattle, we must place the credit on the side of sheep.

The pure descendants of the Spanish Merinos are undoubtedly the most profitable sheep that we have. They yield a more abundant return of wool in comparison to what they consume, than any other breed. They are more robust and hardy. They withstand our northern winters, fed at hay stacks, without any covering above them except the broad heavens, and will range on shorter feed in larger flocks, and keep in good condition, when other breeds would pine away.

Before I end this sheepish chapter, allow me to give you a brief computation on the value and relative merits of two flocks of sheep, one of them the common variety, yielding wool equal to the common average, say three pounds per head; the other flock may be considered pure bred Merinos, and yielding an annual average of four and a half pounds, on the same keep. A. and B each commence with a flock of 100 young breeding ewes; each flock produces annually ninety lambs, for nine years. The *increase* from the lambs we leave out of the account.

Mr. A.'s flock of 100 ewes in 10 years, yields 3,000 pounds of wool, at 3 lbs. per head. Their lambs, in nine years, number 810, which yield 4,050 fleeces, or 12,150 pounds of wool, in nine years; allowing thirty cents per pound, A.'s wool brings, ...	$4,545.00
Mr. B.'s flock of 100 ewes, according to the same calculation, at 4¼ lbs per head, 22,725 lbs., at 30 cts., is.....	6.817.50
Making a profit in B.'s flock over A.'s, of.. in wool only, not including interest.	$2,272.50
If we value B.'s lambs worth only one dollar per head more than A.'s, we allow B. nine hundred dollars *extra in lambs*, in ten years, ...	900.00
Which gives B. the advantage over A. of more than *three thousand dollars* in 10 y'rs.	$3,172.50

In this computation I have given no credit to B. for the extra price that his wool brings in market over A.'s. Pure Merinos will live and propagate about one-third longer than the common sheep of our country.

I will close in hope that some wool grower who may chance to read this chapter on sheep—one that has been in the habit of saying "that he never learned anything in an agricultural paper," will be so far stimula-

ted as to improve his flock of sheep enough in ten years to realize the extra sum of ten dollars, and spend the same for agricultural papers. S. W. JEWETT. *Weybridge, Vt., March 29, 1847.*

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HEAVES IN HORSES.—I have a horse that has been troubled with the heaves for several winters; and his cough was sometimes so severe that it was painful to drive him even on short journeys. By careful treatment, however—chiefly by withholding from him *clover hay*—he entirely recovered, though relapses readily occur. A few weeks ago we drove him on a visit to some distant friends; he was in fine condition; but on our return he began to cough very severely. Probably he had eaten something wrong the night before. Again he was fed on clean timothy hay, and though no medicine was administered, we heard no more of it in a few days. For a horse in this condition we consider hay from a *stack* much better than hay from a *mow*, as the latter is very apt to be dusty.

P. S. Since the foregoing was written, it was most convenient to feed him for a few days with hay made of *clover* and timothy which grew together, when he began to cough again, (though not with a tenth part of his former frequency and violence,) yet the clover when cut was not past its bloom, the leaves bright green, and all cured without rain. I would therefore ask if *clover* has not some specific action in this disease? D. T. *Cayuga co., 3d mo. 10, 1847.*

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WILD POTATOES.—In an address pronounced by Dr. Mitchell before the New-York Horticultural Society, in 1826, mention is made of some wild potatoes, which were sent by Dr. Finslar and Commodore Hull from the coast of Peru in South America. Dr. Finslar, in a letter dated Dec. 10, 1825, to Dr. S. L. Mitchell, says, "I send for your gratification, some of the original potatoes, so long sought for. These potatoes were found growing in their native state, on the top of the island of St. Lorenzo." Commodore Hull, in a letter dated Lima, 27th August, 1825, to Commodore Chauncey, says, I forward you a small box containing what we believe here to be the wild potato. I found it last year on the top of the island of San Lorenzo, in the bay of Callao. About six months ago, I sent to Baltimore some of them, with the small ball on the vines, directed to Mr. Skinner, and requested him to send part of them to Mr. Sewell, of Boston." In another letter he describes them as being "very fine." When boiled they are yellow, and of a good flavor." Dr. Mitchell says he had sent a parcel of the roots to the Hon. Josiah Quincy, who had distributed them among some of the ablest cultivators at Boston.

Now, my object in this communication is, to ascertain what has become of these wild potatoes?—what success has attended the cultivation of them? Can Mr. SKINNER or Mr. QUINCY, or any other person give any account of them? I can find no account in any publication subsequent to 1826. Perhaps some members of the American Institute can give the desired information; if so, will they favor the public through the pages of the Cultivator? H. A. PARSONS. *Buffalo, April 25, 1847.*

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LETTING SHEEP.—A correspondent in your April number, wishes to know something about the terms of letting sheep. What may be customary in other parts of the country I cannot tell, but in New-England and New-York, sheep are frequently let for a term of years, on the following terms, viz: The owner of the sheep to have *half of the wool*, and *all of the increase;* and at the end of the time, have restored to him the original stock, or their value. This gives to the other party, for the use of his land and his attendance, only *half of the wool* from year to year. This, at first sight seems an inadequate remuneration, and yet there are farmers who readily take sheep to keep on these terms. If seven sheep, as is generally allowed, consume a ton of hay in a winter, or in 135 days, which is about the average length of our winters;—the pasturing in the other parts of the year, together with the care, attendance. &c., would bring the expense up to $1.50 per head. How, then, can any farmer afford to keep sheep for half of the wool? Another way of letting sheep, practiced somewhat extensively, is to double the flock to the owner once in three years.

It may not be out of place to remark, that in the manufacture of wool, cloth-dressers give one yard of dressed cloth for 2¼ lbs. of wool; one yard of white flannel for 1¾ lbs.; and one yard of colored flannel for 2 lbs. of wool. ..... H. A. P.

POLL EVIL.—I noticed a very simble cure for the poll evil in your paper some time ago; that is to wash out the sore and apply common salt. We have a good horse that had it for two years. I doubted the simple remedy, but resolved to try it, thinking it could do no harm, at least. However, the horse soon got well. and is now as sound as ever. JOHN MILLER. *Thorton, Ill., Feb., 1857.*

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SALVE FOR AN INFLAMED SORE.—Half dozen Balm Gilead buds, pounded fine, one tea-spoonful honey, and the yolk of an egg; mix together and thicken with rye flour to the consistency of paste. I applied it once a day two or three times. I have used this salve with much benefit to allay inflammation in animals caused by castration. I saved a hog by it, and it is said to be equally as good for a horse. D. W. G. *East Dorset. Vt.*

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FINE CORN CROPS IN OHIO.—The following facts appear in the Report of the Ross County Ag. Society, gleaned from the published statistics which were collected with much care:—In liberty township, the whole amount of the corn crop last year, was 193,704 bushels. from 3,044 acres, or at the average rate of about 48 bushels per acre. The best lot of corn in the township was 40 acres, rated at 90 bushels per acre. The wheat averaged only 10 bushels per acre. and the best lot only 20 bushels per acre.

GYPSUM ON STABLE FLOORS.—Many readers will remember the recommendations a few years since. to sprinkle stable floors with gypsum. for absorbing the escaping ammonia. Several papers contained statements that this practice has caused the speedy decay of the plank of the floor. No satisfactory explanation has been given of the cause. Is this result general?

BREAK THE CRUST.

EVERY observant farmer must have noticed the crust which forms on the surface of newly stirred soils, after lying a few days to the action of the dews. A much heavier crust is formed by each shower of rain which falls. Good and successful cultivation requires that this newly formed crust be often and repeatedly broken by the hoe, harrow, or other instruments.

A striking instance in proof of the importance of this practice, has just been stated by an extensive farmer. He planted a field of broom-corn, and by way of banter. told the man who assisted him, that each should choose a row as nearly alike as possible, and each should hoe his row, and the measured amount of crop on each should be the proof which was hoed best. Our informant stated the result in substance as follows:—"Determined not to be beaten. I hoed my row, well, once a week, the summer through. I had not seen my assistant hoe his at all; but had observed that for a long time he was up in the morning before me. At length I found him before sunrise, hoeing his broom-corn, and I asked him how often he hoed it;—he answered, "Once a day, regularly." The result of the experiment was, his row beat mine by nearly double the amount." T.

DOMESTIC ECONOMY.

DOMESTIC WINE.—We have received from a gentleman whose name we regret we are not at liberty to mention, a sample of wine, being a part of his own vintage. The grapes were the Isabella and Black Hamburgh varieties, and the wine was made in imitation of champagne, which it closely resembles. We have been obligingly furnished with the recipe by which this wine was made, which we publish, in the hope that it may be useful to others:

"The recipe for making this wine I took from some agricultural paper. The process of its manufacture was simple, and is as follows: The grapes were about one-third Isabella, and the remainder Hamburgh. They were well ripened, and were put into a clean barrel and pounded till thoroughly mashed. They were put into a cullender and pressed with the hand till the liquid was separated from the pulp. The juice was then strained through a fine sieve, and put into stone pots, and allowed to stand five or six days, frequently skimming the impurities from the surface. After standing as above stated, 17 pounds of refined crushed sugar was added to 8 gallons of juice, and the whole stirred till the sugar was dissolved. It was then allowed to stand in the stone pots 36 hours, still skimming the impurieties as they rose to the surface. It was then put in bottles and allowed to stand twenty-four hours before corking; after which the bottles were well corked—the corks cut close to the bottle, and the muzzle of the bottle dipped into melted sealing-wax, so as to exclude the air, and the bottles were then put in the cellar."

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TO PRESERVE EGGS FRESH.—Turn water upon unslacked lime, in quantity sufficient to cover the lime. In a short time a scum will rise upon the surface. Then drain off the whole water, and add fresh, and repeat the operation until no more skum rises. Stir up the lime and water, aud put in your eggs, so that they are completely covered. This wholly excludes the external air, and preserves them in the finest order. I have now eggs which have been kept in this way eight months; and on being broken, cannot be distinguished from those which are fresh layed. A lady who gave me the receipt, stated that she had preserved them perfectly good in this way for two years. The repeated saturations with water seems necessary to destroy the too great causticity of the lime; otherwise its strong affinity for the carbonate, the material of the egg shell, causes its decomposition. J. B.

.. ...

PREPARATION OF COFFEE.—Coffee, when properly prepared, is a delicious and nutritious beverage; but judging from that which we frequently meet with, the best modes are seldom practiced. In *Silliman's Journal*, we find a notice of a memoir on Coffee by the distinguished French chemist, M. PAYEN. The results brought out by his chemical researches agree exactly with facts previously known in regard to this article. A great error in the preparation of coffee, is that it is *burned too much*, by which the liquid, when it is brought to the table, is destitute of agreeable flavor, and has a bitter, unpleasant taste. The reason of this is shown.

"Coffee roasted only till it becomes slightly red, preserves the maximum of weight and of aroma, but gives out less coloring matter. In this state, 100 parts are found to have lost 15, while 100 vols. have increased to 130. Roasted to a chestnut color, as is commonly done, the loss is 20 per cent., while the increase in volume is from 100 to 153. This swelling of the grain depends upon the property which the nitrogenous matter deposited within the tissue has of puffing up remarkably when heated.

"If the heat is continued until a dark brown color is produced, and the grain is covered with a sort of glaze, the loss is twenty-five per cent., while the original quantity of nitrogen, 2.45 per cent., is reduced to 1.77, being a loss of one-fourth."

The soluble matter was also found to be much greater in the coffee subjected only to a low degree of burning—the brown giving 16.15, the chestnut-colored 19.00, and the red 25.00 per cent. The difference in "the aroma," it is added, "being nearly the same, the lower degree of roasting will produce not only the best and most nutritious beverage, but one free from the harsh and bitter flavor caused by the action of too high heat upon the nitrogenous matter."

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MILKING.—I am much pleased to see that "Mary" and "Ann" have given their experience in churning butter, and beg to inquire if they do not think there should not be more care and cleanliness used in milking than is generally. The bag of the cow and the teats cannot well be clean when the cow passes much time in the yard, and the milk must catch many hairs and particles of dirt.

The udder might easily be washed with a cloth and cold water, which, besides the cleanliness, would be much better for the cow. I should like to know what farmers' wives and daughters think upon the subject. QUEENS COUNTY.

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PRESERVING TOMATOES.—A correspondent of the Cultivator, in a late number, intimates that preserv ing tomatoes is a humbug. Doubtless untried experiments may be frequently published. But we should always remember that a single failure does not prove that success is impossible. I have known persons fail repeatedly in making soda biscuit, and give up in despair; and yet afterwards become accustomed to the process so as to make soda biscuit with more ease and certainty than any other kind of bread.

My wife has been in the habit for several years, of putting up tomatoes for winter use, and has kept them good for a year and a half. She says they must be stewed a long time—five or six hours at least. They are then well seasoned with salt and pepper; bottled and corked tight, and kept cool. Ours are usually set in the earth in the cellar bottom. My family are very fond of it, either cold or warmed, with beef steak or roast beef. X. Y. Z.

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PRESERVING GREEN CURRANTS FRESH.—M. S. Wilson, of Lenox, Mass., preserves green currants in *dry* glass bottles, corked and sealed tight, placing them in a cool cellar. Green gooseberries may be preserved in the same way. He adds, "In this manner green currants have been preserved in my cellar for years. I have green currant pies on my table at all seasons of the year."

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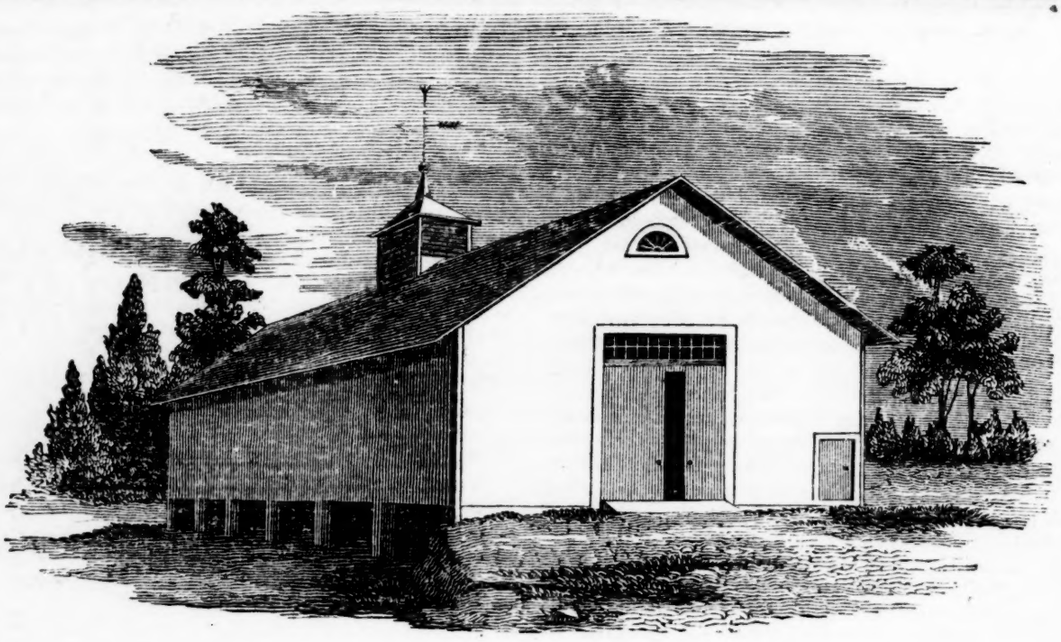
TO REMOVE SPOTS FROM LEATHER GLOVES.—Suspend them in a glass jar, closed, over a portion of the strongest liquid ammonia. The gaseous ammonia gradually removes the spots; but great care is to be taken that the liquid does not touch the gloves, or the color will be badly injured.



PLAN OF A BARN.

THE dimensions of the barn intended to be here represented, are, length 100 feet, width 40 feet, height of posts 18 feet. The principal divisions are a floorway, 12 feet wide through the centre; a bay, 14 feet wide, on one side of the floorway; and an apartment for cattle and horses, 14 feet wide, on the other side.

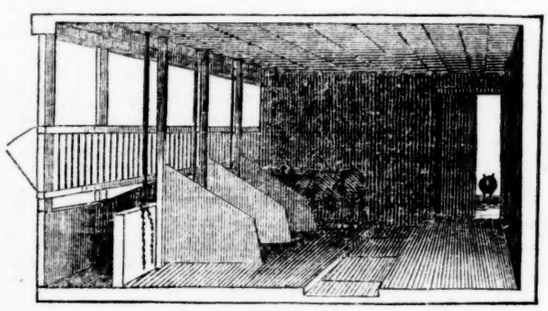
A cellar, as shown in the perspective view, extends under the whole building. The site selected for the barn should be the side of a hill or knoll, so that the bottom of the cellar may be nearly on a level with the ground on the open side, and that the entrance to the barn at either end, may be easy, without making much of an embankment. The open side to the cellar should be to the south or east, and the cattle and horses should stand on the north or west sides of the barn, with their heads towards the floorway. The manure is to be passed through the floor into the cellar in rear of the animals, and is to be kept in a compact body, or from being too much spread about, by means of strong moveable planks, supported against posts. The cellar should be of such depth that carts or wagons may be readily loaded and unloaded in it, and that all the work to be performed there, can be carried on with convenience.

An apartment may be made in the cellar for storing roots or vegetables. It should be at one end, and in part, at least, under the floorway, so that vegetables can be "dumped" into it from a cart. Its size may be regulated, of course, according to the extent to which roots are intended to be used for winter feeding. If the walls are of brick or stone, of proper thickness, and well made, the root cellar will be secure from frost.

The other parts of the cellar may be used for various purposes; part may be used for sheltering cattle, or sheep; part for pigs, if expedient; and part for storing sleds, carts, and other implements, when they are not in use. Being open on one side, it is sufficiently dry and airy for any of these purposes.

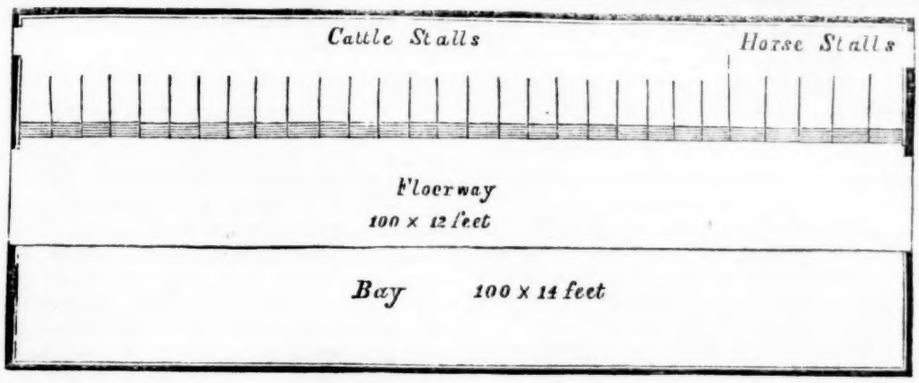
The portion of the cellar not otherwise occupied, forms a part of the barn-yard, and the yard may be made to embrace as large an area as circumstances render necessary. Care should be taken that the manure in the yard is not wasted by drainage. Sheds,—which may be used for sheep, or for other purposes,—and other buildings,—as granary, piggery, &c,—may be placed round the yard in such a manner as to ward off the cold winds, and admit the sun on the southerly side.

The apartment in the barn designed for horse-stalls, is calculated to be eight feet high, and that for cattle, seven and a half feet. Some may suppose that this is a greater height than is necessary; but it is desirable that horses should have so much space that there is no liability of their heads striking against the upper floor, as there is reason to believe that evils, (if not the "poll evil,") have been produced in this way. It is desirable, also, that the apartments, both for horses and cattle, should be sufficiently high in the walls to allow persons of ordinary height to pass readily through or about them, and as that part of the floor on which the animals stand is to be raised, (as will presently be explained,) the height mentioned is believed not to be too much.



Section of Cattle Stalls.—Fig. 41.

The divisions of the apartments appropriated to cattle consist of a manger, a platform on which the cattle stand, a gutter to receive the manure, and a narrow platform or walk, next the wall. The width of the mangers is two feet. On the side next the cattle, they are formed by a piece of timber, seven or eight inches thick, and ten inches high, running the whole length of the apartment, and into which the stanchions, to which the cattle are to be tied, should be inserted at the bottom. A plank, a foot in width, fastened edgewise, forms the opposite side of the mangers. Over this plank



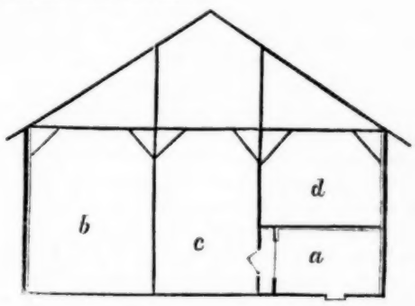
Ground Floor.—Fig. 42.

there is a perpendicular rack, two feet high, but there is an open space of six inches between the plank and rack. To the bottom of the piece which supports the rack, there is attached by a hinge, on the side next the floorway, a kind of door, on which the hay or fodder is placed. This door may be kept at any angle, and let down or shut up at will, by means of small chains, which at one end are attached to the door, and fastened to hooks, at the other end, on the top of the rack.

The platform on which the cattle stand, is calculated in the plan at five and a half feet wide, but five feet will answer. It is raised five inches at the side next the manger, and has a slope of two inches towards the gutter, which is two feet wide. A moveable plank in the gutter, admits the manure to be passed into the cellar.

This plan, it will be seen, combines many advantages, while it admits of considerable modification to suit circumstances, without losing its general principles. Each of the three principal divisions,—floorway, bay, and stalls,—extends the whole length of the building. This arrangement we consider important, and would adopt it in all cases. We would make the width too, of the several divisions about what it is in this plan, whatever might be the length of the barn. A great advantage is, that if it is wished to make an addition, it is simply necessary to extend the length, which is readily done without in the least interfering with the original building, provided due care has been taken in choosing the site. Another great advantage of this plan, is the convenient manner in which it admits of the hay and grain being stored. Suitable timbers are placed at proper distances across the bay and space over the stables, and the various articles being laid up between these, separately, each kind may be readily got, at any time, without being obliged, as is frequently the case, to pitch over a quantity of fodder before the article wanted can be reached. Much expense is likewise saved in unloading,—two hands only being required at any time. The length of the floorway admits of several loads being taken into the barn at once; which, when business presses, or "catching" weather renders it necessary to shelter a large quantity of hay or grain in the shortest possible time, is a point of great importance. The teams enter the floorway, loaded, at one end, are unloaded, and pass out at the other end.

The floorway is lighted by windows over the doors. The doors are placed on small wheels, which move on iron rods. This is much more convenient, and the doors are much stronger than when supported on hinges. A *ventilator* is placed on the centre of the roof, which frees the barn from the gases arising from fresh-stored hay and grain. As a protection against lightning, a good conductor is attached to the side and roof, extending up several feet above the ventilator. The covering of the sides and ends should be boards well seasoned and matched; or they may be rough-boarded and shingled—a plan which is often adopted in Massachusetts. A coat of cheap paint or coal tar should be given to the exterior, and will abundantly repay the cost in preserving the building. All the floors should be made as tight as possible, to prevent the entrance of any exhalations from the manure in the cellar. The scaffolding should also be laid close, to prevent dust from falling on the horses and cattle.



End View.—Fig. 43. *a*, stables—*b*, bay—*c*, floorway—*d*, space over the stables.

When the other parts of the barn are filled, a temporary scaffold may be laid across the floorway, above the windows over the doors, on which a considerable quantity of fodder may be stored.

The general arrangement of the cattle stalls, as shown in fig. 41, will be found especially convenient and useful. The construction of the rack and mangers, is preferable to any other plan the writer has seen. The rack is designed to receive all the hay or fodder for the cattle, excepting that which is cut into chaff. The cattle eat from the rack, and whatever straws are dropped as the fodder is pulled out, fall into the manger. If the cattle have not cleaned the racks when they lie down to rest the fodder does not become contaminated by their breath, as the open space of six inches below the rack permits the escape of the breath, and at the same time allows the animals constant access to fresh air. When stock is fed in common mangers, with uncut hay or fodder, that portion of it which is not eaten at once, is "blown" on, or becomes so affected by the breath that it is not readily eaten afterwards. The feeding arrangement described in the plan obviates this objection.

Another advantage of the open space between the rack and manger, is, that vegetables, meal, or cut fodder, may be passed through it directly into the manger. A movable spout, through which the articles may be poured, facilitates this operation.

The mangers are represented in the plan as being in separate divisions, each animal having one. This is believed to be best, as it is frequently wished to feed variously. By separate mangers, each animal may be fed in any way, or with any kind of food, without being annoyed by others. They may, however, be made sepa-

rately, or not, as is desired. If separate, it will be necessary to have short partitions, as represented in fig. 33, between each animal, to prevent their interfering with each other. A space of three and a half feet is allowed to each animal, if partitions are made. This is not too much room for large stock, though three feet only, where there are no divisions, is all that is allowed, in many cases.

Each animal is tied by a chain round the neck to an upright stanchion. This mode of fastening is safe and convenient, and enables the animals to rest easy. The rack and mangers for horses are made in a similar manner to those for cattle, excepting that they are higher, and the mangers somewhat larger.

The cattle stand on a raised platform, which admits of their being easily kept clean—the manure and urine falling into the gutter, from which they are thrown into the cellar. The narrow platform, next the wall, affords a clean and convenient walk, behind the animals, and also forms a suitable place to set pails, &c., when the cows are milked. Some farmers tie their young calves on this platform; but a separate apartment is preferable for this purpose.

The stables are lighted and ventilated by windows in the rear. (Owing to the situation of the stables, those windows do not appear in the cut.)

The cattle pass from the cellar and yard into the barn, and *vice versa*, through a door at the farther end of the stable. Or an inclined way may be made, communicating directly with the cellar, from the stable.* The advantage of this is, that the cattle are got from the yard and cellar into the stalls, without going round the end of the barn, which, in bad weather, or when the ground is muddy, is quite inconvenient. The ingress and egress for horses is the small door in front. A small apartment may be reserved next the wall, for harnesses, &c., and if the whole of the bay is not wanted for hay and grain, a room for carriages and for other purposes, may be constructed opposite the horse stalls.

Water should be supplied to the cattle in the cellar. It will not be liable to freeze much here, and if properly protected against filth, it will be fresh and pure at all times. Some, however, prefer watering in the barn, and for this purpose have a trough extending through the mangers, into which the water is conveyed whenever it is desired.

The cellar forms the best possible receptacle for manure, all its valuable qualities being here readily preserved. The urine, undoubtedly the most valuable portion of animal excrement, is incorporated with the dung, and by keeping the heap level, and frequently spreading over it a quantity of litter or muck to absorb a portion of the liquids, the mass is kept in a portable condition, and nothing is wasted. Attention, however, should be paid to having the cellar sufficiently tight in the first instance. The wall should be made tight, and if the ground is open or porous, a layer of clay, or mortar made with water-lime, should be spread over it, and allowed to become firm before it is used.

It is proper to observe that in some situations, from the wetness of the ground, it would not be advisable to make cellars. In such cases, a trench two or three feet deep, according to the nature of the soil,) and ten to fifteen feet wide, may be made with advantage. It is advisable to have the trench extend under the barn so far that the urine from the cattle may be conveyed into it; and if the bottom and sides are prepared as above directed for the cellar, and a shed, attached to the barn, is erected over it, the manure will be kept without much waste, and will be found much stronger than that which is exposed to the air in the usual manner.

The expense of erecting such a barn as is here described, will be from $700 to $900, according to cheapness of materials and labor.

* See Feb. number of the Cultivator, page 42—description of Mr. JAQUES' barn, Worcester, Mass.

CULTURE OF TURNEPS.

It should be remembered that it is not too late for sowing turneps. The Swedish turnep, (ruta-baga,) should be sown, if practicable, as early as the middle of June, but the 20th or 25th of the month will answer if they cannot be got in sooner. The yellow Aberdeen is a kind which requires nearly as long a season as the ruta-baga. The common flat turnep grows much quicker than the kinds before mentioned. It will produce a good crop, on tolerably rich land, sown as late as the 25th of July or the first of August. Ground which has produced a crop of hay, rye, or wheat, may give a crop of flat turneps the same season. They are less nutritive than the other kinds, but are, notwithstanding, very useful in feeding stock during the beginning of winter; and from the convenience of cultivating them as an after crop, they are in many instances profitable. For late keeping, or feeding in the latter part of winter and spring, the Aberdeens and Swedes are best.

A soil inclining to sand is most suitable for turneps. Compost of muck and barn-yard dung, with a dressing of leached ashes, furnishes a good manure. The seed should be sown in drills. Two feet spaces between the drills will admit the use of a small harrow or cultivator in cultivating the crop. Flat turneps should be thinned to eight inches between the plants, and ruta-baga to twelve inches. If the ground is not very porous and dry, it will generally be preferable to form ridges on which to sow the crop. They may be made with a small plow drawn by one horse, or more readily with a double mould-board plow. On stubble or sward ground, care should be taken in making the ridges, that the grass and weeds are not turned up. The ridges should be levelled by passing a roller over them, before the seed is sown. A pound of seed to the acre, evenly distributed, as it may be by a good machine, is sufficient.

A dressing of plaster sown on the plants as soon as they are up, while they are wet with dew, will afford considerable protection against the turnep fly or *flea*, and will on many soils greatly hasten the growth of the crop. The weeds must be killed as soon as they appear. The scuffle-hoe is the best hand tool for this purpose. It may be run rapidly along the ridges, close to the plants, and may take out almost every weed in the row without doing any damage. The spaces between the rows may be chiefly worked by a harrow or cultivator—the former is preferable on light lands. The plants should not be much thinned till they have got into the fourth leaf, and appear to be pretty well out of the way of the fly.

Feeding Turneps.—When milch cows are fed with turneps, the milk frequently has a disagreeable flavor. To eradicate the taste communicated by the turneps, different substances have been recommended to be put in the milk, such as saltpetre, cloride of lime, &c. Mr. J. McD. MCINTYRE, of this city, who is in the habit of feeding his cows during winter with both turneps and brewers' grains, informs us that while both these articles are used, no unpleasant taste is given to the milk; but that if the grains are omitted, the flavor of the milk is affected by the turneps. His rule has been to feed each cow about half a bushel of Swedish turneps and half a bushel of grains per day, and it has been repeatedly noticed that when the turneps are stopped the milk is considerably decreased in quantity, and the cows appear to be less healthy.

The custom house value of the specie dollar of Denmark, is one hundred and five cents.

AGRICULTURE AND RURAL ECONOMY OF EUROPE.

LETTERS FROM PROF. NORTON.

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Utrecht, Netherlands, April 5, 1847.

EDITORS CULTIVATOR—As the opening spring is rousing the agriculturist to action, and the various crops, objects of his care and hopes, are being committed to the earth, or are already showing themselves above its surface, I occasionally emerge from the laboratory, and walk out of the city for a mile or two; the circle of my observations is not very extended, and the season of activity has but just commenced; I nevertheless see many things which are new, and somewhat peculiar. I therefore propose to give you in this and succeeding letters, a series of sketches of what I may see and hear in this immediate vicinity.

There is a great variety of land about Utrecht, from a light sand, through rich black loam to stiff brick clays. I hope to be able to compare the farming of these several kinds of land, the different systems pursued in their management, and the quantities of crops grown. All views here are limited in extent, the country being so flat that but little can be seen at any one time, except by ascending some lofty tower.

The main roads, paved with brick, and very smooth, are not numerous, but numbers of small ones branch off at short intervals, and wind about among the fields like foot paths. A ditch runs along on each side, generally the only separation from the field; there are no fences and few hedges. One of these ditches, about four feet deep, I lately saw crossed by a truly original bridge. Several loads of manure had been thrown in, filling the ditch to the brim, and then consolidated by trampling until sufficiently hard to permit the passage of wagons.

The fields are generally of good size, frequently of 35 or 40 acres; but the advantages of size appear to be lost by the custom of growing half a dozen different crops in one enclosure. Each field seems to represent an entire farm.

I to-day saw for the first time, one of their plows in the field; it was quite long and wide, with but one handle, and double wheeled, resembling much the Norfolk plow of England, but far larger. The furrow was not more than four inches in depth, and about eight inches wide. A two horse harrow in the same field might almost have been drawn by two men; the teeth were all curved forward. So far as I have seen, all the work is well and handsomely finished, the surface is left very mellow and smooth; on such land as most of it is, this however, is not strange. I have lately seen some new plows, and other improved implements exhibited here, but it is very difficult to bring them into use. Even if the farmer himself is brought (no easy task,) to the trying of something new, his men are generally very obstinate as to accomplishing anything with it. I heard of an enterprising man in the province of Groningen, who determined to adopt some of the best English implements. He imported them, and compelled his men to their use; they, however, broke them whenever they could do so without being discovered, and he was obliged to give it up, and return to the old awkward tools.

The autumn sown wheat is now looking very well, and is said to promise unusually through the whole country. The spring sown grains are seemingly for the greater part, deposited in the soil.

Potato growing goes on still, notwithstanding the experience of former years. I saw a new way of planting to-day. A line was stretched across the ridge of about twenty feet wide, and following it, the potatoes were dibbled in, at distances of from eight to ten inches in the rows, and from two to two and one-half feet between them. The potato was dropped into the hole made by the wooden dibbling instrument, and covered by a blow of the same. The tubers used for seed were of the smallest kind so far as I saw them, not much larger than walnuts. The whole process was extremely slow. The manure was spread and plowed in before planting.

A very large extent of ground is occupied in the cultivation of rape, or cole, called in Dutch, "koolzaad." Some of it appeared to have been sown this season, indeed, by far the greater part, but from its size and general appearance in other fields, it must have been sown in the autumn. This plant grows to about 18 inches or two feet in height, and has a seed of the same shape as mustard seed, but five or six times larger. The oil obtained from this seed is well known; the quantity yielded is very great, being stated by Prof. Johnston as from 40 to 70 per cent.

The hard cake obtained after the oil is expressed, is ground, and under the name of rape dust is extensively used as a manure, especially in England. It seems to be remarkably efficacious when applied as a top-dressing to wheat. In dry seasons it produces little or no beneficial effect, and in some cases has been known to actually diminish the crop. This rape cake would be an excellent fattening food for cattle if they could be persuaded to like it; but it has a sharp pungent taste that is highly disagreeable. I believe that by far the greater part of the cake made here goes to England. I have seen while travelling in Norfolk and Suffolk, that it is there one of their principal and most highly prized resources. Prof. Johnston, in his lectures, gives some interesting experiments, comparing rape-dust and guano, under like circumstances. JOHN P. NORTON.

NOTES OF A TRAVELLER IN ENGLAND—No. 4.

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ROADS, COTTAGES, FLOWERS, &c.—The perfection of the roads in England, has been the theme of every traveller through that richly cultivated country. The travelling by coach on the great thoroughfares through the kingdom, has been greatly diminished since railroads have been constructed. In many parts of the kingdom, however, the coach is still in use, and some idea may be formed of the ease and comfort of that mode of travelling which was formerly the pride and boast of every Englishman. Over their level and smooth roads, it is certainly one of the most delightful methods of travelling *in fine weather*. A seat upon the box with the coachman, who is usually intelligent and free to converse with a traveller, and well acquainted with the history of persons and places of interest on his route, renders this a very pleasant method of seeing the country, and learning the incidents which interest a stranger. The coachman has nothing to do with the horses until the time arrives for starting. He examines the team, sees that all is right, mounts his box, and is off at the rate of ten miles an hour, which I found the usual speed on all their roads. When he arrives at the place for changing horses, his lines are thrown down, and he enters the public house, where he is the great man among the hangers on, and as he receives notice that all is ready, mounts his box again, and is off.

The roads usually wind round through the farms, bounded on each side, generally, by neatly trimmed hedges, with trees occasionally interspersed, presenting every few rods new views and interesting scenery, that are truly delightful. The roads are made with the greatest care, generally macadamized, and entirely smooth. They are much narrower than with us, usually through the country, only wide enough for carriages to pass. The custom in England is, for each team to turn to the left, instead of the right, as with us. Its advantages are apparent, as the driver setting on the right, has in view the vehicle which is approaching, and can more readily ascertain how far he can drive with safety. In making their roads great care is taken to avoid hills, they judging, I suppose, that it is not ordinarily much farther to *go round a hill* than to go over it. Foot paths are usually made with care on one or both sides of the road. No danger is to be apprehended from swine, or other animals, as they are not permitted the enjoyment of that license, which seems to be their birthright in our free country. I have never witnessed them running at large in city or country, not even in sweet Ireland.

The cottages which you pass, are generally neat in their outward appearance, very frequently covered with climbing vines, and flowers usually in abundance in the small yard in front, and often in pots at the windows. The cottages are low, the roof frequently not as high as the top of the coach, and a full view of the interior is enjoyed, as they are situated close to the road. Every few miles villages are passed through,—but the term village, as descriptive of our American villages, gives but a faint impression of an English one. Instead of spacious streets, with painted houses of two or more stories, we find, as the road winds around through the narrow streets, small cottages and shops crowded together close to the street, frequently with thatched roofs, with brick or stone floors. A house or two, occupied perhaps by the rector or physician, are somewhat more aristocratic in their appearance. Many of the buildings are white-washed, and covered with vines, and present, upon the whole, an interesting appearance, but little of the comfort of one of our villages. They appear as ancient, many of them, as their country, and I presume little change has been made in them for centuries.

England truly is the land of flowers. They are to be found everywhere. The markets are filled with them. You meet them in the streets carried about by females and children for sale, and everybody, from the poorest up to her majesty, have a bouquet of flowers in the button hole or about the person. In the omnibus coach, railroad cars, on the steamer, on change, in the store—in fact, everywhere, they are to be met with. 'Tis delightful thus to witness their taste for flowers. It adds much to the pleasure of every one, and when it can be obtained at so cheap a rate, it is certainly desirable to cultivate a taste for them.

The loads which a team can draw over their roads are nearly twice as heavy as could be drawn over ours with the same power. It will require time and care to bring our roads into such a state as to resemble roads here. It would be well, I think, to begin to approximate to the like condition. Had the labor which has been so unskilfully expended on our roads for the last twenty years, been laid out in macadamizing them, we should, on all our principally travelled roads, have had them as good as the roads are here. It is hoped that improvement, in this respect will not much longer be delayed. H.

CORN IN NEW-YORK.—According to the census of 1845, there were 595,135 acres planted with corn the preceding year, in the state, giving an aggregate of 14,722,115 bushels.

RURAL NOTICES ABROAD—By CAIUS.—No. V.

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TUSCAN AGRICULTURE.—Little of the agriculture of continental Europe is superior to that of Tuscany. This is owing in some measure to the natural advantages of soil, climate, and position, and not less to the benefit of wholesome laws, which secure to the peasant the full advantage of his labors. At the first approach, as one comes from the south, into the dominions of the Grand Duke, he is struck with the superior air of the field laborers, with their happy, contented looks, their neat dresses, and is rejoiced to find at length in Italy, a peasantry that does not beg.

Here and there, it is true, among the mountains, beggars are to be met with even in Tuscany, yet even these are of neater and more cheerful aspect than are to be found in the Roman States. The cottages are better built, and are cleaner; and at the doors of nearly all of them, you will see the Tuscan girls busy braiding their Tuscan hats. The straw is a species of wheat grown on indifferent soils, and cut before fully ripe. It is sorted, stripped, bundled, moistened, bleached, and split, before going into the hands of the *plaiters*. The pressing is done after braiding. The sums earned by the braiders is a mere trifle. I had the curiosity to ask a mountain girl on the way from Terni to Florence, how much she could earn by a week's braiding. "If the work is well done," said she, "two pauls (24 cts.) a week; but if not well done, nothing."

The crops raised, are in general the same with those of the Papal states. Rice is occasionally seen along the banks of the streams, and is irrigated with the utmost system. Corn is more common, and better than further south, though the mode of culture is very much the same. Clover grows most luxuriantly; mulberries also make their appearance, and silk is a large article of Tuscan manufacture. In the true spirit of economy, the mulberry orchards are also vineyards, and the vines are festooned from tree to tree, as in the Sicilian and Lombard kingdoms. The wine however of Tuscany, is generally of an inferior quality—by no means so good as that of the Roman States. Indeed, so far as my observation has extended, I have found it to be true, that when the vine is suffered to clamber upon trees, and extend itself from one to the other, as in Tuscany and Lombardy, though the yield in grapes is much larger, the clusters being larger and fuller, yet the quality of the wine is vastly inferior in body and in flavor, to that grown upon short plants, as in France, and along the Rhine. Much of the Neapolitan wine is grown upon trees, as in Tuscany, but by far the best of the kingdom, the "*Lachrymæ Christi*," is grown after the method last named.

Plums and figs grow abundantly in the neighborhood of the Tuscan towns; and hedges and cultivation generally approach the neatness of English appearance. Flowers of every color are to be seen in the fields, and by the road side, and the valley around Florence seems in its whole extent a garden. The land is divided into small farms, in many instances managed by their owners; the road-way is clean and smooth, and hedges skirt it that blossom in early May. The fields are filled with plum, and cherry, and mulberry trees, with vines clambering over them; and beneath is some rich crop of wheat, or clover, or tares. The cattle, when you see them—for in the neighborhood of the towns soiling is much practiced—are smooth, fine-skinned animals, of fair size and make, and generally of a light grey color, verging upon white.

The spade is the most general implement of culture; the plows, however, are substantially made, and perform their work well. Gates are neat in their construction; gardens are prettily laid out and choicely stocked.

The Tuscan peasant is more courteous in his air and manner than other peasantry of Italy. He lifts his hat to the passing traveller; his dress is clean and well made. If you enter into conversation with him you find him civil and communicative to an extreme. In short, the valley about Florence, is, considering its natural advantages of soil and situation, —its picturesque beauty,—its government, its climate, the character of its inhabitants—the most desirable spot in Italy. Half a dozen times, on my first descent of the mountains into Florence, my eye rested on snug lying farmeries, with well cultivated fields, and blooming hedges about them, with most covetous indulgence; and I thought I would have been content to have passed my life upon them, in sight of the great dome of the Florentine cathedral lifting out of the houses, in the lap of the valley below;—in sight of the quaint old maccolated tower of the palace of the Duke;—in sight of the bright Arno, winding off like a silver stripe among meadows of as rich luxuriance as lie anywhere under the sun;—in sight of the blue opposite mountains of Fiesole and Valiombrosa, and under as soft and pure a sky, for months together, as that of New England in the mildest days of an October summer.

The Grand Duke himself has an exceedingly well regulated farming establishment, a short drive from the city down the Arno. The stables are imposing looking buildings, of no inconsiderable architectural pretensions, and ornamented at the angles, and over the central doors with well executed heads of cattle, in stucco. The cows are of the Swiss breed, and dun color, in fine condition, kept constantly in stable, except a short time for exercise in the morning. Their food during summer is rye grass, clover, and vetch, with sometimes a taste of grain.

The drainiags of the stable pass directly, by means of gutters in the brick floor into a large vat, whence it is transported in casks, to enrich the grass lands. Fourteen quarts a day, I was told, was the average yield of milk. The calves, as in all well regulated establishments I have seen, are taken directiy from the cow, and reared by hand. The dairy is in keeping with the nicety of the stabling. The homes of the laborers are of uniform and tasteful construction—of stone, and stuccoed. Both the Duke and Dutchess give occasional personal inspection to the premises. The example of the Duke has undoubtedly had its influence, in direction of agricultural taste and method.

The market of Florence is profusely supplied with vegetables and fruits, and its meats are good. In no city, indeed, of its size, which I have visited, can the necessaries and the luxuries of life be secured at so cheap a rate as in Florence. For instance, a dinner of two or three dishes and dessert, with a half bottle of wine, can be had in a well furnished restauraut, for the trifling sum of twenty-five cents. A ride of an hour in a two horse carriage may be had for the same sum; other matters are much in the same proportion.

HOEING OR CULTIVATING CROPS.

The chief or primary object in hoeing crops is to increase the quantity and improve the quality of the produce. To this end, various means are adopted. A point of the first consequence, is the eradication of weeds and all plants excepting those which it is wished to cultivate. The necessity of destroying weeds, arises from several causes. Their growth interferes with and injures the crop in various ways. They exhaust the soil, more or less, of the elements which constitute the food of cultivated plants; they especially abstract the moisture of the soil, making a constant drain upon it in this respect, from the first moment of their existence.

It is of great importance that weeds should be killed while they are young. If killed at this stage, the injury they occasion is comparatively trifling, and the expense incurred in the operation is but little, compared with what would be required to effect the obje t when they are more fully grown. The brush of a hoe or the scratch of a light harrow, will effectually kill a weed at the time it appears above ground, whereas the growth of a few weeks would give it such a hold on the soil that it would withstand considerable force, and to eradicate it would require ten times the labor which would have effected the object in the first instance. Besides, if weeds are allowed to reach a large size, their roots become more or less mingled and entwined with the roots of the cultivated plants, so that in pulling up the weeds, the crop is liable to be injured.

Some people seem not to be aware of the serious injury which the introduction of pernicious plants is to the soil. Some of the rich "corn lands" of the western states, have already suffered a great deterioration from this cause. The negligent and slovenly manner in which the corn is too frequently "tended," has filled the soil with every pest which will grow on it. The foul growth is in many cases suffered to increase every year, till there seems to be between the weeds and corn a great strife for the mastery; and though the corn, on some of the most fertile fields, grows twelve to fifteen feet high, or more, it scarcely exceeds the weeds in height or strength, and judging from the liberal *border* around the fields, of which the weeds seem to have gained full possession, and from their frequent appearance among the crop, the prospect seems fair for the day being ultimately carried by them.

Stirring the ground, to a certain extent, is beneficial to crops, aside from the effect of keeping down the weeds. By keeping the soil loose, the roots of plants more readily extend themselves; the soil is rendered more permeable to the sun, by which a more congenial temperature is gained for plants; it facilitates the absorption of dews, which bring down ammonia and fertilizing elements from the atmosphere; and it exposes the soil more to the action of the air, by which the decomposition and combination of the various elements of vegetable food is effected. The action of the oxygen of the atmosphere is thought to be particularly beneficial on clays, and slaty and granitic soils. The combination of the oxygen with the iron, and its action on the other mineral elements, produces a disintegration of the stony materials, and leaves the soil more friable. The admission of oxygen into the soil, may likewise be useful by its entering into combination with the carbon of the soil, and thus forming carbonic acid, the food of plants.

On some soils, especially those of a tenacious nature, a hard crust frequently forms, by which heat and air are much excluded. Some simple implement, as a harrow or cultivator, should be used with sufficient frequency to prevent the crust from forming. As the growth of plants increases, their roots are more widely extended, and it is not proper to use tools which will mutilate and destroy the roots.

It is important that plants should be duly exposed to the influence of light and air. It is only under the in-

fluence of light that they are able to digest their food. They take in carbonic acid and water, but by the aid of light, they decompose the carbonic acid, giving off the oxygen, and retaining the carbon to form their tissues.* This influence of light is quite surprising. If a plant is placed in a dark room, and a ray of light is admitted on one side, the ends of the branches are soon directed towards the light, and the plant seems to struggle to reach that part of the room where the light is strongest and its influence most direct. If a small tree be planted under or near a large one, or on the side of a forest, it soon begins to lean to the side nearest to the light, and will continue to grow in this direction, putting out but few or no branches on the side most affected by the shade of other trees.

These facts are cited to show the necessity of giving plants sufficient room. If they are crowded too thickly together, the sun is too much excluded from the soil, and from the want of sufficient circulation of air, the plants are less healthy, being more subject to blight; and the blight is prevented from coming in contact with the stems and leaves in such a manner that the sap can be properly elaborated. Where plants stand so thick that the light strikes them mostly on the tops, they are drawn into slender stalks, having but little substance.

But in cedar and pine forests, where it is sometimes desired that the trees, in order to make timber for certain purposes, may attain a great height in proportion to their circumference, a dense growth is an advantage.

NEW DISEASE AMONG NEAT CATTLE.

ON a fine morning in June, 1838, a neighbor of mine requested me to examine the bodies of two fat steers which he had just found dead in his pasture field, and which he suspected had been poisoned. He said that having driven one from the field late the previous afternoon, he had observed the two that were now lying dead before us, quietly grazing about, apparently in perfect health. As their hides had been removed, my attention was first attracted by the bloodless appearance of the flesh, like that of well dressed butcher's meat. There was no offensive smell, nor any distension of the abdomen. On laying open that cavity no gas escaped, and the stomach, or maw, the part first exposed, presented a perfectly healthy appearance. On cutting into this organ, it was found well filled with grass, which had a very fresh and natural appearance, as if the animal had fed in perfect health until within a few minutes of its death. On raising up flaps with the knife, a thin pelliele was seen to detach itself by its own weight and that of the grass adhering to it, leaving the villous coat of the stomach perfectly clean, and apparently healthy. The maw being now removed, brought into view the liver, the spleen, and small intestines. Hitherto every thing had presented nearly a natural aspect, but this was now no longer the case. The liver, indeed, appeared healthy, with the exception of a somewhat unnatural paleness, out the spleen was much distended with black blood, and the small intestines were found filled, entirely filled with the same fluid! So intensely did this dark colored blood show through the thin coats of the bowels, that the bystanders mistook it for mortification; but after letting out their contents the membranes assumed their natural color. It seemed that all the blood in the body had found its way into the bowels, and this view of the matter was strengthened by examining the viscera of the chest. The lungs were very pale and bloodless, and upon slitting open the heart across the septum, so as to lay open both ventricles; the right was found to exhibit some bloody stains. but the left was as clean as if it had been wiped out with a wet cloth. The animal had evidently died of bleeding, and that without the escape of a drop of blood from the body. It had probably fed until dark, wholly unconscious of its impending fate, and then quietly laid itself down to sleep the sleep of death. Nearly all the blood in the body, by some unknown process, had been suddenly transferred from its natural receptacles into the intestinal tube; and so suddenly had this been accomplished, and with so little previous indisposition, that all the animal functions had been performed in apparently the most healthy manner until within a few moments of dissolution. But *how*, or by what channel had the blood been so transferred, was a question for the anatomist. By what unknown, what miraculous process had such a state of things been brought about? How could the animal live until the blood-vessels, and even the heart itself could be entirely emptied? No butcher ever accomplished a feat like this. Slit open the heart of the most thoroughly bled animal from the slaughter house, and it will be found to contain large clots of blood. No human means can sustain life until the heart squeezes out the last drop of its contents. No poison known to man—no chemical knowledge, however profound, could concoct a poison capable of producing a death like this! To him alone who created, is it reserved to slay in a manner so wonderful.

It may well be supposed that I felt a deep interest in this strange discovery, and lost no opportunity in its further investigation. Many deaths of the same kind occurred in the town of Rye that season, but I could learn of only one instance in which any indisposition was noticed before death. Most of the animals must have died in the night, as they were found dead in the morning, without having exhibited any evidence of disease the previous day. One alone was seen in the day time for a few minutes staggering about. but it soon settled upon the ground and quietly expired. All the examinations made that season, presented precisely the same appearances.

There was the same bloodless appearance of the flesh, the absence of fetor and gaseous distension of the abdomen; the same fresh and natural condition of the herbage in the stomach, as if the animal had fed until the last hour of life; the intestines presenting the same dark purple appearance, in consequence of the whole tube, through all its doublings and convolutions, being entirely filled with blood; while the heart, in every instance, was found entirely empty.

I heard nothing more of this disease for a space of eight years, until last summer, (1846,) when a gentleman one morning requested me to examine the body of a cow he had just lost, in the hope that I might be able to detect the poison with which, as he supposed, she had been destroyed. He stated that she had been brought from the field in the morning with other cows for the purpose of being milked, and was at that time apparently as well as any of them. When about half milked she stepped away and laid down under a tree; the milker coming into the house, related the fact, and complained that she could not get her up again. On going out himself he found her dying, and

* Carbonic acid consists of carbon and oxygen; 6 lbs. of carbon and 16 lbs. of oxygen forming 22 lbs. of carbonic acid.—*Johnston.*

she actually expired within half an hour from the time of laying down. This statement at once induced suspicion that the malady of 1838 had returned again, and I described to him minutely the appearances then met with, and ventured to predict that his cow would be found in the same condition; in which case, I remarked, the idea of poison by any human agency, cannot for a moment be entertained. It is only necessary here to add, that the examination confirmed the prediction in the most minute particulars.

Hitherto this disease has been confined entirely to neat cattle, and as far as I knew, had appeared only in the summer months. In February last, however, a friend called to request the chemical examination of the stomach of a young heifer that had just died, saying that he had previously lost several cattle in the same way, and that his neighbors, all suspecting poison, had urged him to have the matter thoroughly investigated. In answer to a question of mine, he stated that he had lost ten in all, seven of them in the warm months of summer, and three the present winter; and that he had never found one of them sick; the first intimation of his loss being that of finding them dead in the field, with but one exception, and in that the animal was breathing its last when discovered. On cutting open the specimen he had brought with him, it disclosed the peculiar appearances described as belonging to this disease, and I stated to him the discoveries previously made, and that on his return home, a further examination would probably show him the heart destitute of blood, and the intestines filled with it; and that he might rest assured that no human agency could have had any share in the matter. This last suggestion seemed to be very acceptable to him, for the suspicion of having an enemy about him base enough to destroy his property in this manner, was exceedingly annoying. And here it will be proper to point the reader's attention to the fact that every application for post-mortem examinations hitherto mentioned, had been based upon this suspicion of poison; a suspicion far more harrassing and vexatious to generous and worthy minds than the loss of property itself; and it was a hope of being able to dissipate this delusion, so fraught with mischief to society, and so liable to disturb the harmony and good feeling of every neighborhood where it might be entertained, that first suggested the idea of writing this history. But the singular and novel features of the disease itself, and the deep interest the farmer has in its further investigation, may perhaps give it a still higher claim to a place among the agricultural notices of the day.

It was the intention of the writer to compare the peculiar features of this disease with the symptoms detailed in the history of past epidemics among domestic animals, and likewise to offer a theory in explanation of the strange physiological fact alluded to in describing its post mortem appearances; but the length to which this article has already arrived, must defer this intention to a future period. THOMAS CLOSE, M. D.

Portchester, Westchester Co., March, 1847.

THE ORCHARD AND THE GARDEN.

CULTIVATING ORCHARDS.—In many large districts, a greater number of fruit trees have been set out during the past four years, than previously since the settlement of the country. The attention to the subject which has been thus awakened, seems destined to work quite a revolution in rural improvement, and in the tastes of our people, and to enable at least a part of the community to taste for themselves some of the most delicious fruits in cultivation. Hitherto most of the fine varieties have perhaps not been known to a thousandth part. And notwithstanding the rapid increase of young orchards, a long time must yet elapse before every person, even of ample means, has a plentiful supply of the best successively ripening varieties.

Nothing has operated more to check improvement, than the neglect of young trees after they are once set out. The man who transplants fifty peach trees into meadow ground, and loses one-half by being smothered with the growth of the grass, and the other half the following winter by the gnawings of meadow mice, will not be long in becoming disheartened in fruit culture. He who sets out a hundred apple trees in grass land, or in ground devoted to the cultivation of wheat and oats, where triple the time necessarily required, elapses before the trees bear, satisfies himself and his neighbors that he who plants young trees, only plants for posterity. No conclusion can be more erroneous, no practice more pernicious to horticultural improvement. When the best management is given,—and the best is incomparably the cheapest and most economical,—young trees, no larger than a carriage whip, may be brought into a good bearing state, in an incredibly short time. One of the finest, most productive, and most profitable peach orchards in the whole state of New-York, is only seven years old since setting out. No crop is raised among the trees, but the ground is kept clean and mellow by plowing and harrowing. A very celebrated fruit garden and orchard was planted by the proprietor after age had marked his hair with silvery whiteness; he has now for twenty years enjoyed the luxury of plentiful crops from his trees, and is still in the vigor of life. His success was chiefly owing to good transplanting—digging holes six feet in diameter, and filling them with fine rich earth—and to thorough cultivation of the soil for several subsequent years.

There are various degrees of good and bad treatment, which from their common or uncommon occurrence, deserve to be pointed out.

1. The worst of all is to transplant young trees to a meadow, and worst of all a clover meadow. An orchard of several hundred young peach trees was noticed last summer, which had been set out in a clover lot the previous spring or autumn, and though the trees appeared to have been of fine growth before transplanting, not one in twenty was alive. If it ever becomes necessary to set out young trees in meadow ground, each row must stand on a plowed strip of ground, at least seven feet wide, kept constantly clean and mellow.

2. Next to meadows, placing young trees among grain-crops sown broadcast, is the worst. They may, in such circumstances, survive removal, but it is impossible for them to make much growth. Young trees standing in well-hoed potato crops, have been observed to make *at least six times* greater length of growth in one season, than trees standing in wheat-fields. Corn, though greatly shading young trees by its tall growth, is far better than wheat, oats. or barley, in consequence of the hoeing and cultivation which is given.

3. The only crops which should be *tolerated*, are low, hoed crops, as potatoes, carrots, field beets, rutabagas. &c.

4. But the best mode altogether, is to keep the

ground clean and mellow for several feet distance (6 to 10,) from the young trees. All crops necessarily abstract the nourishment which should go to the tree, and prevent that thorough and constant stirring which should be given to the soil. Young trees, the past season, were found to have made nearly double the growth, where the soil was kept clean and unincumbered, compared with those which stood among well cultivated root crops.

While trees are yet young and small, the wide intermediate spaces between the rows may be cultivated with roots, leaving about one-third of the land in unoccupied strips next the trees. But when the trees become large, it is far best not to attempt the raising of any other than the fruit crop. If the trees are of good varieties, the increase in the amount borne, and in the quality and value, where the whole surface is left perfectly free for annual plowing and monthly harrowing, will many times overbalance the worth of any other crop which may be derived from the ground, to say nothing of the inconvenience resulting from treading down this other crop in gathering the fruit. T.

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THE HAWLEY APPLE.—In the Cultivator for April you have given a very correct description of the "Hawley or Douse apple," which, as you say, is one of the finest variety of apples which is cultivated. It is also said, "its origin appears, at present, to be unknown." This is a mistake, as will be seen by the following extract of a letter to E. A. BROWN, Esq., of this village. The origin of this fruit, which has deservedly so high a rank in the estimation of all Horticulturists who are acquainted with it, will, I doubt not, be interesting to your readers. The letter is dated Canaan, Columbia county, April 7, 1847, and is written by THOS. HAWLEY, the grandson of Matthew Hawley, whose name the celebrated fruit bears:

"The given name of grand-father was Matthew Hawley. He was from Old Milford, Connecticut, and brought the seed with him, nearly 100 years ago, and planted it in a nursery. When he was setting out his orchard, he took up a little, crooked, scrubby, tree and set it along with the others. After he had finished setting his trees, and having some good ones left, in passing back by the crooked one they had set, my father observed to the old gentleman, we had better pull up this tree and set out a straight one in its place. My grand-father said, 'no, no, let it stand—I will drive up some stakes by it, and tie it up—it may bear good fruit.' The tree soon grew into a straight, thrifty one, and soon began to bear; and to their amazement the fruit was so early, large and fair, that it called people far and near to see and taste it. The body was large, not tall, and it spread its branches far and wide. My grand-father first grew this now celebrated apple, which is now cultivated in almost every orchard in town. The old tree has been dead about 12 years. The original name of the apple was 'Hawley,' which is the right name, and ought never to be changed. The original tree out-lived all the old folks, and then it died."

This delicious apple is a seedling from Old Connecticut, and was undoubtedly first grown by MATTHEW HAWLEY, of Columbia county, near 100 years ago. The name of Douse, as you suggest, has been given to it undoubtedly from the fact that a person of that name introduced somewhere the grafts from the old tree at Canaan. L. H. REDFIELD. *Syracuse, April* 23, 1847.

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FALSE NAMES TO APPLES.—J. Dille, of Newark, O., says in the Ohio Cultivator, that he has found within five miles of his residence, four distinct apples with the name of Newtown pippin, three of Romanite, and two of Harrison.

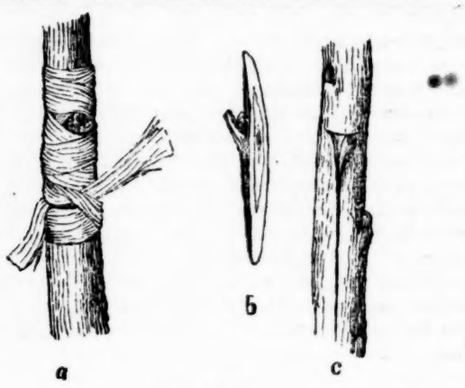

Fig. 36.

BUDDINGS.—In compliance with the request of our correspondent J. B., we give herewith a cut and description of the process of budding, taken from THOMAS' *Fruit Culturist*. The various parts of the operation are represented in fig. 36; *c*, the cut stock; *b*, the bud ready to insert; *a*, the whole after the ligature is applied.

"Budding is to be performed while the stock is in a state of vigorous growth, and while the bark will peel freely. An incision is made lengthwise through the bark of the stock, and a small cut at right angles at the top, the whole resembling the letter T. A bud is then taken from a shoot of the present year's growth, by shaving off the bark an inch or an inch and a half in length, with a small part of the wood directly beneath the bud. The edges of the bark at the incision in the stock are then raised a little, and the bud pushed downwards under the bark. A bandage of bass, cornhusk, or other substance, is then wrapped snugly, covering all parts but the bud; and even this may be covered if not very prominent, especially if the pressure be rather less than other parts. The pressure should be sufficient to keep the inserted portion closely to the stock, but not such as to bruise or cut the bark.

"When by growth the bandage cuts into the stock, usually in ten days to three weeks, it is to be removed. The bud remains dormant till the following spring, when the stock is cut off an inch or more above it. If cut closer the end of the stock sometimes dies and the bud perishes. All other buds must then be removed, and all the vigor of the stock thrown into the remaining bud, which immediately commences a rapid growth."

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CONVENTION OF FRUIT GROWERS IN VERMONT.—Through the Cultivator I would propose to the farmers, gardeners, orchardists, nurserymen and all connoisseurs of good fruit, residents of Vermont, that they meet in convention called for the purpose of encouraging the cultivation and distributing the best native fruits of our State, and all foreign approved varieties.

Let them assemble at the most convenient time and place, and compare the merits of our best native apples, and such other fruits deemed worthy of encouragement. Fix on a list of such as are found to be the most valuable for general cultivation, exhibiting not only our native varieties, but those valuable kinds introduced from foreign countries. Also to collect and disseminate the best information on the cultivation and preservation of fruits and the orchard. Let all the yeomanry of the State come together, either personally or by town and county delegation, those who are interested in rearing or in *eating* choice fruit, for the purpose of interchanging their views, and make liberal exhibitions of such fruits as are worthy of encouragement.

There is no State in the Union that produces so much value from the orchard, according to its size or population, as Vermont We have thousands of native apple trees now in a bearing state—from this innumerable list

a choice lot of seedling fruits may be selected worthy of cultivation, many of which will either become extinct, or let our generation pass off before they are generally introduced.

I notice in the Maine Farmer that a Society has been formed at Augusta for the purpose of encouraging the cultivation of good fruits—that an exhibition of many new and choice kinds were upon the ground. This Society will undoubtedly render that State and the world very essential service.

I would suggest and recommend that those friendly to the cause, meet at the capitol of our State, while the Legislature are in session, for the purpose of forming a Pomological Society, and make an exhibition of fruits. Those approving, let them express their views through the Cultivator, or any other channel which they may choose. I hope those who are most spirited and interested in growing fruit, and approve of the measure, will fix upon a time and place.

For many years we have not paid that attention to orcharding which the subject demands. Home consumption is sufficient protection and encouragement for the present, but we may soon expect to have foreign markets opened to us at the east and south by rail-way, which will command our surplus at remunerating prices. S. W. Jewett. *Weybridge, Vt.*, 1847.

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Blight in Pear Trees Cured.—Having noticed several articles in the Cultivator respecting the fire blight in pear trees, I will relate my treatment of a tree in my garden of about 2½ inches in diameter, during last summer. It was about the last of June that I first noticed the desease by the dropping of the leaves on one of the limbs, in about three days after the leaves turned black, which made me fear that I should lose my tree. I immediately examined Mr. Downing's work, and there found the only remedy was the cutting off the affected part, which I did. This stopped the disease as far as the limb was concerned ; but still the whole tree began to droop, which led me to examine farther, when I found the bark on the body of the tree to be entirely dead, and all cracked open for about 4 feet from the roots upwards. I then immediately prepared some ordinary grafting salve which I melted over a slow fire, and kept it warm till I whittled the whole of the dead bark off of the tree to the naked wood. I then applied two coats of said salve on the tree with a brush, dug about the roots, and left it. In about two weeks after, my tree revived ; the fruit, which had not grown for two weeks, commenced growing, and ripened well, except it was most of it stung or indented on one side. The pears were Virgalieu. My tree now has an entire new bark, and is as full of blossoms as can be, and in perfect health, at No. 48 Howard-street. A. Van Voast. *Albany, May* 13, 1847.

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Germination of Seeds.—I noticed in the Cultivator for April, a method of ensuring the germination of small seeds. I prefer a different process, which is as follows : I take a piece of writing paper, five inches square, which I fold down or double in the middle ; I then tuck two of the sides into each other, so as to form a cylinder open at both ends, two and a half inches long and one and a half inches in diameter ; two pins keep the paper in proper form. I then place it on a shingle, and fill it with rich, moist loam, then carefully remove it to a plate. When the plate is full I sow the seeds, and supply water by pouring it into the plate. In a few days, especially if the plate be put under a stove, the seed will germinate. Care must be taken in placing the cylinder in the ground, that there are no interstices between its bottom and the bottom of the hole in which it is placed. If the hole be made by pressing a good dibble perpendicularly in well-stirred soil, there will be no danger of this. If larger cylinders be used, and they are oiled, tender plants may be forwarded and the striking of cuttings made certain. W. H. Hayward. *Salem, N. H., April*, 1847.

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Peach Grub.—Cultivators of the peach should examine their trees early for the peach worm. Its presence may be perceived at a glance by the exuding gum at the surface of the ground, mixed with the pulverized bark, resembling saw-dust. Clear the earth away, follow the worm-hole under the surface of the bark, to its termination, and the worm will be found, and may be at once destroyed. There is no other way of destroying this insect after it has once obtained possession. Air-slaked lime and leached ashes are useful in *preventing* its entrance, but by no means infallible. T.

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Cranberries on Upland.—In addition to statements heretofore published in the papers, the Prairie Farmer gives figures showing the relative sizes of fruit grown wild and on cultivated ground, showing the great superiority of the latter. In the cultivated cranberry the color was much more uniform, approaching at the blossom end to deep purple or black." "Most men in comparing the latter, would pronounce the cultivated fruit at least *three times* larger than the wild."

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Productive Orchard.—A correspondent of the Prairie Farmer, says, that an orchard of 300 apple trees, owned by Elijah Capps, of Fulton Co., Illinois, nineteen or twenty years old from the seed, produces now from 20 to 40 bushels per tree. Much of this success may doubtless be ascribed to the new and fertile soil of that country; but it might be nearly approximated further east, by deep, rich, highly manured soil, and constant and mellow cultivation.

CORN FOR FODDER.

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Let no farmer neglect at the proper season to sow a plentiful supply. Several years' experience enables the writer to say, that at least double the amount of the best fodder may thus be obtained from an acre, over any other known mode, and very often triple the amount. If most meadows which now produce scarcely a ton per acre, were plowed and planted in this way, they would scarcely fail to yield four tons of the best and finest cattle feed, and many would yield five or six tons.

The management of the crop, however, must be of the proper kind, or complete success cannot result. Never sow broadcast,—for this requires four or five bushels of seed per acre, to succeed well, is less productive, and does not leave the ground clean. Invariably sow in drills, as follows:—Furrow the land (after it is plowed and harrowed,) three feet apart, with a single-horse plow; scatter the seed thickly along these furrows from a hand-basket, so that there may be at least forty or fifty grains to the foot. Cover the seed by a two-horse harrow, run lengthwise or crosswise with the furrows, and the crop is in. The only after-culture consists in running the cultivator once or twice between the rows—all weeds will be shaded and destroyed by the crop—and the ground will be left early in autumn when the fodder is cut, as clean as a travelled road.

The seed may be sown any time during the early part of the present month—two bushels will be required per acre—and it may be harvested early in autumn, in time for a crop of wheat. The stalks should be stacked as dry as possible—in small stacks—and well salted—or injury by heating and mouldiness will follow. T.

Grant Thorburn has lately sent to the Emperor of Russia 10 lbs. potato seed at *twenty dollars per pound*.

MONTHLY NOTICES—TO CORRESPONDENTS, &c.

COMMUNICATIONS have been received, since our last, from J. D. Jones, A Sucker, Nelson, Mars, N., Buel Baldwin, L. H. Redfield, J. B., J. Townsend, Jona. Whitney, jr., F. Brand, J. Holden, T. G., S. J. Wheeler, A. M., H. A. Parsons, P., H. A. P., Prof. J. P. Norton, Caius, S. W. Johnson, A. Van Voast, Alfred Hall, John W. Burrass, (dated Nov. 18, 1846,) C. B. Wood, F. J. Scott, Prof. E. N. Horsford.

We are indebted to W. H. HAYWARD, Esq., Salem, N. H., for a paper of the "Ribbon-stalk Pea," noticed in our March number, page 95.

☞ We would invite attention to Dr. CLOSE's communication in this number, in relation to a disease in cattle of a singular character. We can find nothing analagous to it in books, and have never before heard of such a disease except from one person. PAYNE WINGATE, Esq., of Hallowell, Maine, stated to the writer several years ago, that he had known the loss of several animals whose appearances, as he described them, corresponded with those presented by the animals described by Dr. CLOSE. We should feel obliged to friend WINGATE for any suggestions in reference to this disease.

THREE STEERS OF ONE BIRTH.—Col. BARKER, of Clinton, Oneida county, lately exhibited in this city three fine steers, between four and five years old, produced at one birth. They were bred by JOHN FULMER, Esq., of Warren county, New Jersey. They weighed in March last 5,600 lbs., or an average of 1,866 lbs. each. They are very near of a size—there being only four pounds difference between two of them, and the other being only sixteen pounds heavier. Their shape is very good, and so near do they resemble each other in this respect, as well as in size and color, that ordinary observers can scarcely distinguish them. They are dull white, with a few small reddish spots. We understand the owner intends exhibiting them at the Saratoga Show in September.

SINGULAR.—GEORGE HEZLEP, Esq., of Gustavus, Ohio, informs us that a mare belonging to Mr. JOSEPH COWDEN, of that town, has lately produced two foals at a birth, one of which is evidently a mule, and the other appears to be wholly of the horse species. The circumstances are stated to be that the mare was served by a horse, and "two days after" by a jack. If these animals, when fully developed, should correspond with the description now given of them, they will present an interesting circumstance to the naturalist. We would suggest, however, whether it is not somewhat probable that the diverse appearance of the foals may not be owing to a different cause from the one assigned. It is well known that offspring produced by an union of animals of different species, or widely differing varieties, are quite various in their characteristics. Some mules, for instance, bear more resemblance to the horse and others more to the ass. A cross between the Merino and the Leicester or the Cotswold sheep, shows a great diversity—some possessing the large horns and the short and thick fleece of their Spanish progenitors, while others exhibit in equally as striking a manner, the leading traits of their long-wooled parents. Even in a pair of *twin lambs* of this cross, we have seen such a marked difference that a cursory observer might suppose one to be purely Merino, and the other as purely Leicester. Now we would suggest that a sharp eye be kept on these foals, and as they approach maturity, see whether the assinine origin is not more or less exhibited in both. Should one prove fertile and the other barren, we should regard it as evidence in favor of the hypothesis of a different parentage.

We do not, however, deny that the animals in question may have originated as our correspondent has stated; but we deem the subject worthy a careful examination. We believe there is an account recorded, perhaps by Dr. PALLAS, but to which we cannot now refer, of a bitch having had a litter of puppies, some of which appeared to belong to a greyhound, others to a terrier, and others to a bull-dog. But in the above case of the mare, there must have been, according to the account, a difference of two days in conception. We submit to our medical friends whether such a case should not be regarded as one of super-fœtation.

COATING FOR HOUSES AND OTHER BUILDINGS.—Hon. H. L. ELLSWORTH gives us the following recipe:—6 lbs. of tallow, 1 bushel unslaked lime, 2 quarts salt, 2 lbs. borax—color with anything wished.

AGRICULTURAL SCHOOL AND EXPERIMENTAL FARM During the late session of the legislature, several petitions were presented by the Farmer's Club of the American Institute, asking aid from the state for the establishment of an Agricultural School and Experimental Farm, to be placed under the care of the Institute. One of these petitions was referred to the committee on colleges, academies and schools, which, through their chairman, Mr. BURCHARD, reported a bill favorable to the prayer of the petitioners. The bill was not, however, acted on, but lays over to be called up at the adjourned session in September. What action will then be taken on it cannot be predicted.

Another report was made on the same petition, by Mr. BECKWITH, chairman of the committee on agriculture. This report states that in the opinion of the committee, "the prayer of the petitioners ought not to be granted." The reasons given for this conclusion, are, in substance, that if such an institution is to be aided by the funds of the state, it should not be located "near a large city at an extreme part of the state," but in a more central situation; that the call on the state for funds, is made in advance of any demonstration on the part of the petitioners to procure aid and means from other sources."

The committee, however, recommend the study of agriculture by means of books, in the Normal School, and in the academies and local institutions which are already established and endowed in all parts of the state.

We do not propose at this time to discuss the principles set forth in either of these reports; but will merely remark that it is gratifying to see that the agricultural interest is steadily and surely advancing to the position which it is entitled to hold, and from which it will, at no distant period, exercise its due influence on our legislative councils. The first and principal step towards securing this object, is the proper education of the rising generation of agriculturists. We are confident that causes are now in operation which will ultimately produce the desired result. The language used by Mr. BECKWITH, in closing his report, happily expresses our own views:

"We hope the day is not far distant, when an uneducated farmer will be as rare a person as an uneducated lawyer, physician, or minister. We mean, too, by an education, something more than a knowledge of the mere routine of the farm, and farming operations; we mean by the term, a mental training, by which the man

who works amid the complicated arrangements of the subtle and refined agencies of nature, will be able to understand those arrangements and give direction to the laws which control them."

Cross-bred Fowls.—We have received from Mr. T. C. Abrahams, of West Troy, a pair of fowls, which are a cross of the English pheasant with the game fowl. We are aware that there are various opinions as to the feasibility of such a cross, but we think the circumstances under which these fowls were produced, decidedly settles the point. Mr. A. states that several of his first attempts failed, but on adopting the following course, he was entirely successful. He took some young chicks of the game fowl, and some, as nearly of the same size as possible, of the English pheasant, and put them in a pen together. As soon as the chickens were so old that the sex could be distinguished, the game cocks were all taken out, leaving with the pheasant cocks several of the game fowl pullets,—taking care to choose those which in color most nearly resembled the pheasant hen. The result was that at the proper age the pheasant cocks readily matched with the game hens, and the produce was the cross breed spoken of. Mr. A. kept them shut up, entirely separate from all other fowls, for *two years*, during which time they produced several broods, some of which were three-fourths blood pheasants. They are a beautiful stock, the males showing great courage and activity.

Mr. Abrahams showed us a cock and six hens from England, said to be a cross of the Chinese silver pheasant with the English game fowl. These are splendid birds—somewhat larger on the average than those produced from the English pheasant. The cock weighed seven pounds and a half, and is the most eagle-like bird of this description that we have lately seen.

Unburnt Brick.—In answer to the inquiry of "Ruralist," in the last number of the Cultivator, whether unburnt brick may be made in the autumn, and kept in an out-house for building in spring,—it is only necessary to state, that if made early enough in autumn to become well dried before winter, there can be no question that unburnt brick would keep as well piled up in an out-house, as standing in a wall exposed to the side-action of the weather, as in case of the newly built house, which it is well known is attended with no difficulty. T.

Trotting Horse for Canada.—B. Pomeroy, Esq., of Eastern township, Canada East, has lately purchased, in behalf of the Sherbrooke Agricultural Society, the entire horse *Logan*, formerly owned by Geo. M. Patchen, of Brooklyn, L. I. This horse is seven years old, and is half brother to the noted trotter *Cassius M. Clay*. Logan is of good size—weighing nearly 1,200 lbs.,—and from what we saw of him, appears to be a strong constitutioned, muscular, and powerful animal. We are told, (we did not see him trot,) that he can easily perform his mile in less than three minutes. We understand the price paid for this horse was $1000.

Bloody Murrain.—Hon. H. L. Ellsworth, now of Lafayette, Ind., informs us that the following recipe has proved a preventive of this disease in several sections where it has prevailed to a great extent :—Take two pints wood ashes and one pint clay, and knead them into lumps with salt and water. Lay the lumps where the cattle can lick them whenever they desire to do so.

The Race Horse American Eclipse.—The name of this celebrated horse is doubtless remembered by many of our readers; though but few of them, perhaps, are aware that he is still living. In the *Louisville* (Ky.) *Journal*, of April 7th, last, we notice an advertisement of him. It appears that he is owned by Jilson Yates, and will be kept for the season at his stable, in Shelbyville, Ky. From an article written by his former owner, C. W. Van Ranst, published in *Am. Turf Register*, vol. III, it appears that Eclipse was foaled on the 25th of May, 1814, at Dosoris, Long Island. Consequently, he is now *thirty-three* years old. He is said to be in fine health and condition, and as sprightly as a colt." His great race with Henry took place on the 27th of May, 1823—24 years ago.

Report on Horses.—An error having occurred in the publication of the Report on Horses at the last State Fair, published in the Cultivator for October last, we give the following extract from the Report, to set the matter right:—"The committee having found some difficulty in bringing colts into fair competition with horses of mature age, respectfully recommend the following uncommonly fine animals to the Society, for extra premiums:

1st. "Perfection," three years old, owned by Geo Fordon, Geneva.

2d. "Black Prince," three years old, owned by Reuben Teft, Chemung Co.

3d. "Golden Farmer," two years old, owned by Cyrus Breed, Oswego Co.

Good Sheep for the West.—Mr. S. M. West has taken to Seneca county, Ohio, forty yearling Merino rams, from the flock of J. S. Pettibone, Esq., of Manchester, Vt. Having had an opportunity of seeing these sheep while on their journey, we can pronounce them a good lot. We are told that they were not *selected*, but comprise all the rams which Mr. Pettibone had on hand of the produce of last season. They therefore exhibit more fairly the character of the whole flock. They are well formed, have good constitutions, and their bodies are well covered with soft, white wool, of extra length for so fine a staple, and very free from gum. Some notices of Mr. P.'s flock have before appeared in our columns. He has furnished us with a memorandum of his last year's clip of wool, from which it appears that he sheared 350 sheep, the fleeces of which averaged 4 lbs. 1 oz. each, "without loss," and were sold at *forty cents* per pound to Mr. Harrington of Troy, for a manufacturer in Templeton, Mass. Mr. West's destination is Adams township, about six 'miles from Tiffin, Ohio. We have no doubt that his stock will be an acquisition to that section.

Offer.—Mr. Thomas Noble, of Massilon. Ohio, well known as the owner of one of the best flocks of fine-wooled sheep in the country, offers, through the *Ohio Cultivator*, *two hundred dollars* for a Merino ram that will produce a fleece of five pounds "net wool" of one year's growth—the quality to be equal to the average of his own "Merino stock bucks." The animal offered is to be given into Mr. Noble's possession immediately after shearing, and he is to give a guaranty "that he shall be kindly cared for twelve months"—the fleece to be properly cleansed, weighed, &c.

Humbuggery—Another Case.—We have heard that a man in Newfane, Vt., claims to have Alpacas, and that he has sold some animals under that name, at very high prices. He states, we are informed, that he purchased the stock of "Mr. Brackett, of Bolton," at the Worcester (Mass.) Cattle Show, in 1844. We *happened* to attend that exhibition, but neither saw nor heard of any Alpacas being there. We saw, however, some shaggy-fleeced *African sheep*, which we spoke of in our account of the show. On turning to the Transactions of the Worcester Ag. Society for that year, we find it stated that Mr. Thomas S. Brackett, of Bolton, presented for exhibition "his African sheep, which were of a novel character and appearance." These then, are the *Alpacas*, for which some "green horns" have paid dear.

Wool Depot.—We would call attention to the advertisement of Mr. Blanchard in regard to his wool depot

We believe the general establishment of such depots will prove useful both to the wool-grower and manufacturer, and we are glad to hear that Mr. B. has thus far succeeded to the full extent of his anticipations.

SUBSOIL PLOWING.—H. N. Gillet, in the Ohio Cultivator, in speaking of the importance of subsoiling, notices the hard stratum of earth, a few inches below the surface, "almost impervious to water, and impenetrable to the roots of plants, occasioned by the pressure of the bottom of the plow and the tread of the furrow horse, for a long series of years. The importance of admitting the roots to the subsoil, was strikingly shown by an experiment in digging a well, where a deep bed of the subsoil produced ears of corn 22 inches in length, which, he says, "were 6 inches longer than I ever saw, and 4 inches longer that I ever heard or read of." Subsoils vary in fertility, and experiment must be resorted to, to prove their relative value.

ANSWERS TO INQUIRIES.

ROOT-CUTTERS—CHURN.—N., Nelson county, Va. The best kind of root or vegetable cutter made in this country, so far as we are acquainted, is that made by Messrs. RUGGLES, NOURSE & MASON, Worcester, Mass., mentioned in our January number. The price is $12. For a churn we should prefer either KENDALL'S or GALT'S. The various sizes of Kendall's were spoken of in our March number, page 98. The price of Galt's is $2, $2.50, $3, $3.75, $4.50, according to size. The largest will answer for a dairy of 40 cows. All these implements are for sale at the Albany Agricultural Warehouse. As to the cost of transportation to Richmond, it would probably be from fifty to seventy-five cents each.

RAT-PROOF GRANARIES.—W. F. B., Davidsonville, Md. The usual way of protecting granaries from rats, is to place the building on posts two or three feet high, with flat stones two feet (or more) square, on the top of the posts. Suitable stones should be placed at the bottom of the posts, to afford a firm foundation. A granary thus protected, will be free from rats and mice, unless they are *carried* in by some means. Where stones cannot be had, we have seen shallow tin pans, bottom upwards, used instead, with good advantage.

HAY-CAPS.—J. H., Warwick Neck, R. I. Hay-caps are made in a very simple way. Four posts, about six by eight inches square, are set up at about ten to twelve feet apart. A square roof, as it is called, that is, one having four sides, is made to fit these posts, and it is kept in place, and may be raised or lowered at will, pins to support it being put through the posts. Pine, spruce, or cedar, are best for the posts. A rough foundation should be laid on the ground before filling the cap, to keep the hay from the ground.

HORSE-POWER—LUCERNE.—T. B., Pleasant Hill, Alabama. We do not know whether WARREN'S horse-power would be adapted to working cotton-gins or not. We think it probable, however, that it would give the requisite speed—which you state to be "300 revolutions per minute, with an 8-inch wheel upon the gin, and a walk of the horse." There are other machines which it might be well for you to examine—as HALL'S, (see Cultivator for '44, p. 344,) and TAPLIN'S, (same vol., p. 377.)—Lucerne seed can be had by the quantity at 30 cents per lb. If it is sown broadcast, and without any other seed, 12 lbs. is recommended per acre. If sown in drills, 8 inches apart, 3 lbs. is sufficient. We cannot tell what quantity of seed an acre will produce.

PRICES OF RAMS.—J. McG., Charlotte, Me. We hardly know what kind of a ram to recommend for the purpose of improving your flock, "both in mutton and wool." The best mutton sheep do not produce *fine* wool. If you wish for a medium sort of sheep, as your question seems to imply, we think an improved Cotswold or good Licester ram would suit. The price of one here would be from ten to fifteen dollars, and the cost of transportation to Eastport, *via* railroad to Boston, would probably be from two to three dollars, freight and charges included.

GUANO.—W. C., Federalsburg, Md. About 200 bushels of guano to the acre is a medium quantity. It is spread on the surface and harrowed in for corn as well as other crops.

NOTICES OF NEW PUBLICATIONS.

A REPORT ON THE TREES AND SHRUBS GROWING NATURALLY IN THE FORESTS OF MASSACHUSETTS: published agreeably to an order of the Legislature, by the Commissioners on the Zoological and Botanical Survey of the State.

The author of this report is GEO. B. EMERSON, Esq., a gentleman well known for the efficient aid he has rendered the cause of education. The leading object of the work appears to be to describe the trees and shrubs growing naturally in Massachusetts in relation to their economical uses, and to present the modes by which they may be most successfully preserved, propagated and improved. The author informs us that it was not written for men of science—though such may find in it many particulars not before recorded—but for the "common, unlearned citizens who live on farms in the country, and have few books and little leisure." We are certain that the volume contains a large amount of useful information. The descriptions are exceedingly well given, in language readily understood by all. The author informs us that "every important tree and shrub has been described from copious notes taken under or near the growing plant itself." We shall at another time present a more extended notice of the contents of this valuable book.

ABSTRACT FROM THE RETURNS OF AGRICULTURAL SOCIETIES IN MASSACHUSETTS for the year 1846: by JOHN G. PALFREY, Secretary of the Commonwealth. DUTTON & WENTWORTH, Boston.

This work embodies the principal information in relation to agricultural concerns, which has been brought out by the various agricultural societies in Massachusetts during the last year. On looking over the pages we find some interesting facts, though we have not room to refer to them particularly at this time.

It appears the State Ag. Society of Massachusetts have taken active measures for the promotion of knowledge in reference to the anatomy and diseases of animals. They have purchased in Paris, at a cost of $800, a figure of a horse of full size, so constructed that it may be taken to pieces, and will accurately represent the muscles, blood-vessels, heart, lungs and other organs, of their natural size and appearance. They have also directed the preparation of full-sized skeletons of the horse and ox. They have engaged Dr. BROOKS to give a course of lectures on the diseases of the horse, which it is expected will be given next winter.

The following remarks on plowing and plowing-matches, which we find under the head of re-prints from the Essex Agricultural Society, we commend to the special attention of committees or judges appointed on such occasions:

"It is not useful at a plowing-match to attempt a display of work such as a good farmer would not approve on his own farm. What we want is that kind of work which would be most valuable when applied upon the same kind of land in the ordinary process of cultivation. * * * In judging of plowing, we think it proper to notice the form of the plow used; the condition of the cattle; the manner in which they work; the skill with which the plow is used; the size and position of the furrow-slice; and combining the considerations

connected with each and all these points, without attaching undue importance to any one of them, to approve that work the best which would be most worthy of imitation on a farm."

A Manual of the Principles of Road-Making: comprising the Location, Construction and Improvement of Roads, (common, macadam, paved, plank, etc.) and Railroads: by W M. Gillespie, A. M., C. E., Professor of Civil Engineering in Union College—pp. 336. New-York, A. S. Barnes & Co.

The author of this work has supplied a desideratum which has long existed. Perhaps there is no subject on which information is more needed by the country in general, than on that of road-making. To be satisfied of this, it is only necessary to notice the miserable manner in which a large portion of our roads are constructed. The author of this volume opens by stating that "the roads of a country are accurate and certain tests of the degree of its civilization." Whether this is or is not admitted in its broadest sense, we think it true that the character of a community as to enterprise, public spirit, and even intelligence, is generally judged of by the condition of its public roads. Mr. Gillespie has taken up the subject in a proper manner—beginning the work at the right place, and prosecuting it in systematic order to its completion. He first tells "what roads ought to be," as to their direction, their slopes, cross-section, surface, cost; next, the "location of roads," arrangement of hills, valleys, and water-courses, with directions for surveying, mapping, establishing grades, calculating excavations, embankments, &c. The next chapter is on the "construction of roads," in which all the details in regard to earth-work and mechanical structures, such as bridges culverts and drains are given. The next chapter describes the manner of making the different kinds of roads, as earth roads, gravel roads, broken-stone roads, paved roads, roads of wood, &c. Next follows a chapter on the construction of railroads. The closing portion of the work is devoted to a discussion of the present road system, in which its defects are shown and a new system proposed. The book is for sale by E. H. Pease and by Steele & Durrie, Albany.

AGRICULTURAL SOCIETIES.

New-York State Society.—We have not room for the proceedings of the Executive Committee, at their April meeting. Among the most important of its proceedings, we consider the arrangement with Dr. Fitch, of Salem, for a thorough Agricultural Survey of Washington county, to be published in the Society's Transactions for 1847. From the peculiar qualifications of Dr. Fitch for the undertaking, and his untiring industry, we anticipate a report which will serve for a pattern for the surveys of other counties. The premiums on Butter Dairies were increased so as to correspond with those on cheese, viz: 1st, $50—2d, $30—3d, $20. Letters were read from gentlemen in different parts of the state, and several donations of books, samples of grain, &c., acknowledged. The Secretary was ordered to procure some one to prepare a memoir of the late Willis Gaylord, and a committee appointed on the subject of the removal of the remains of the late Judge Buel, to the new Rural Cemetery. The next meeting of the executive committee is to be held at the United States Hotel, Saratoga Springs, on Thursday, the 3d day of June next, at 12 o'clock at noon, at which time Judges and committees will be appointed, and arrangements made for the Cattle Show and Fair.

Persons in western New-York who have not received diplomas and premiums awarded at the State Fair at Auburn, will please notify J. Alleyn, at the office of the city Treasurer, Rochester.

Rhode-Island Society for the Encouragement of Domestic Industry.—We have received a list of premiums offered by this Society for 1847. We notice that a large portion of the money is offered for making experiments on various subjects, and if the experiments are properly conducted, the results will prove of great utility.

Worcester County, Mass.—This long established and most useful Agricultural Society, held its meeting for the choice of officers, at Worcester, on the 17th April, when the Hon. Levi Lincoln, who, we believe, has been at the head of the Society for nearly thirty years, was re-appointed President; and John Brooks, of Princeton, and George Dewey, of Westboro, Vice-Presidents; John W. Lincoln, Cor., and Wm. S. Lincoln, Worcester, Rec. Secretaries; Anthony Chase, Treasurer. A Board of Trustees, consisting of 172 persons, located in the different towns of the county, was also appointed.

Burlington County, N. J.—An Ag. Society was organized in this county, by a meeting held at Mount Holley on the 13th of April. After the adoption of the constitution, Dr. Jona. I. Spencer, of Morestown, was chosen President; Wm. N. Shinn, Isaac V. Brown, Charles Collins, and Levi Barton, Vice-Presidents; Joseph F. Burr, Rec. and C. Gillingham, Cor. Sec'y; and C. M. Harker, Treasurer. A Fair is to be held in October next.

Chittenden County, Vt.—The Fair of this Society is to be held on the 22d of September. The list of premiums amounts to $618. For list of officers, see March number, p. 96. This society distributes among its members 200 copies of the Cultivator.

Lamoille County, Vt.—An Ag. Society has recently been formed in this county, which will hold its first exhibition at Hyde Park, on the 28th Sept. next. Ariel Hunton, President; and Carlos S. Nores, Sec'y.

The Provincial Ag. Society of Canada West, will hold their next great Exhibition at Hamilton, on the 6th and 7th of October next. The premium list is about equal to that of our State Ag. Society, previous to the present year, amounting in cash premiums to nearly $2,500, together with 300 volumes of works on Agriculture and Horticulture. E. W. Thomson, Esq., of Toronto, is President, and W. G. Edmundson, Toronto, Secretary.

Windsor County, Vt.—We have been favored with the Premium List of this Society for 1847, the Fair to be held at Woodstock, on the 7th of October. The Premium List embraces a great variety of articles, and amounts to near $800. For officers of this society, see March number, p. 96.

Queens County, N. Y.—We are indebted to A. G. Carll, Esq., Secretary of this society, for its list of premiums, to be awarded in October next, embracing, to a great extent, the products of the farm, orchard, and garden.

Yates County, N. Y.—At the annual meeting of the society in this county, Charles Lee, of Milo, was chosen President; Artemas Bigelow, Sec'y, and F. A. Stebbins, Treas. A Vice-President and member of the Board, was also chosen from each town in the county.

☞ We have received from Rodman Sisson, Esq., of Abington, Luzerne Co., Pa., a parcel of apples, comprising handsome specimens of the Rhode Island Greening, Belle-flower, and several kinds of sweet apples. Also, a sample of maple sugar, of a quality rarely equalled, although it is, as we are informed, only a fair specimen of the whole quantity, (several hundred pounds,) manufactured by him the present season.

Hogs in the United States.—The Genesee Farmer says that "the *hog crop* in the United States, this past year, is three times the worth of the cotton crop. The 'standing army' of swine consumes annually two hundred millions of bushels of corn."

THE SEASON AND THE CROPS.

The spring has been unusually backward, the weather having been generally cold till about the 8th of May. Since that time it has been moderately warm. Blossoms of most fruit-trees and shrubs make a good show, and the prospect for fruit may be considered fair, unless unusually late frosts should occur. As to winter grain, the accounts we receive are not very definite. The papers of the western states, in some instances, speak of the wheat having been injured by the winter, and we hear some complaints of this kind from the south. The grass crop appears well, and with seasonable rains will be abundant. The late period at which the spring opened, has obliged farmers to do their work in considerable hurry; but should we now have constantly favorable weather, we consider the farmer's prospects not less flattering than in ordinary seasons.

Extracts from letters to the Editors of the Cultivator:

Davidsonville, Md., April 16—"Wheat crops in this part of Maryland have suffered much from the unfavorable winter. Some planters have abandoned tobacco for a while—nearly every one has lessened his crop, and increased that of Indian corn."

Bucks County, Pa., April 30.—"The weather is cold, and the ground very dry, having had but little rain for near four weeks, and very high winds most of the time. Grass is very backward, and the roots are much injured by the winter. Wheat looks very bad, and some have plowed up their grain fields and sowed them with oats, and several more might as well do the same. The present appearance is very poor for a wheat crop in the eastern part of Pennsylvania."

PRICES OF AGRICULTURAL PRODUCTS.

New-York, May 19, 1847.

FLOUR—Genesee, per bbl, $8.35*a*$8.37½. Market large, exceeding the landing—sales 15,000 bbls., closing firm at latter quotations.

GRAIN—Corn, Northern yellow, per bushel of 56 lbs., $1 02—Rye, $1.15*a*$1.18—Oats, 56c.—Wheat in demand and but a small supply. Sales of red Ohio at $1.75—Barley in demand, but none offering.

BUTTER—Orange County, per lb., 22c.—good Western, 18*a*20 cents

CHEESE—Per lb., 7*a*8c.

BEEF—Mess, per bbl., $11.50*a*$12.25—Prime, $8.50*a*$9.25.

PORK—Mess, per bbl., $15.12½—Prime, $13.12½. Market tending upwards.

HAMS—per lb., 8½*a*9¼ cts.

LARD—Per lb. in kegs, 9½*a*10c. Sales dull.

HEMP—Russia, clean, per ton, $245—Manilla, $190*a*$200.

HOPS—Per lb., 8*a*9c.

COTTON—New Orleans and Alabama per lb., 5¾*a*9c.—Florida. 5⅞*a*8c.—Upland, 5⅝*a*7½c.

WOOL—(Boston prices.)

Prime or Saxon fleeces, washed per lb.....	45*a*50	cts.
American full blood fleeces,.....	40*a*45	"
" three-fourths blood fleeces,.....	33*a*37	"
" half blood do	30*a*32	"
" one-fourth blood and common,.....	28*a*30	"

REMARKS—Since the arrival of the Britannia at Boston on the 17th, the market for breadstuffs has been tending upward, an effect which is in part attributed to the small arrivals from the west, which are not sufficient to meet the demand. Our accounts from Europe represent the scarcity as great as heretofore, and there is little doubt that there will be a firm demand for our produce for some time to come. In England, there is evidently but little grain on hand, and it appears that they have but little hope of obtaining supplies except from the United States. The *Mark Lane Express* observes—"Many of the countries to which we are in the habit of looking for supplies, when our own crops turn out defective, are in a worse position than ourselves; indeed the scarcity of breadstuffs may be said to be almost universal over the whole of Europe, and it may well admit of doubt whether the surplus growth of America, great as are her resources, will be found sufficient to make good such extensive wants."

GUANO.

200 TONS Ichaboe Guano, balance ship Shakspeare's cargo, the best ever imported in the country, for sale in lots to suit purchasers, by E. K. COLLINS, 56 South-st.
April 1.—tf.

HORSE RAKES.

WILCOX'S Revolving Horse Rakes, which has taken the premiums at most of the New England Fairs, for sale at the Albany Ag. Warehouse and Seed Store—price $7 and $8.
May 1, 1847. L. TUCKER.

HORSE POWERS AND THRESHERS.

THE attention of farmers is invited to Wheeler's Patent Horse Powers, an engraving and description of which is given in the Cultivator for Feb., 1847. Among the advantages of this power are its compact size and lightness, and the ease with which sufficient speed can be obtained for threshing, without gearing, and consequently greatly lessening the friction. It will be found a great labor-saving machine, as it may be attached to Threshing Machines, Circular Saws for sawing, Straw-Cutters, or any other machine which it is wished to impel by motive power. Price, for single horse power, $75—for two horses $95.

Also, Wheeler's Spike Thresher, with a cylinder of 14 inches in diameter, and 22 inches long, with the concave filled with spikes on the upper side, thus avoiding accidents by preventing stones or other substances getting into the Thresher. Another advantage of this Thresher is, that it scatters the grain much less than many others. Price, $28—with Separator attached, $35. The Separator divides the straw and grain, by a shaking motion which it receives from a crank attached to the Thresher, thus saving the work of one or two men with rakes.

With this Horse Power and Thresher, 200 bushels of oats, or 100 of wheat may be threshed per day, with a change of horses.

The above machines constantly on hand at the Albany Ag. Warehouse and Seed Store, No. 10, Green-street.
June 1, 1847. LUTHER TUCKER.

CHEAP PLOWS.

SINGLE-Horse Plows, from $2.00 to $3 00 each;
Double-Horse " " $3.00 to $6.00 "

The woods of these plows are made of the best of *white oak*. The handles are *steamed* and then *bent crooked*, instead of being sawed out. This makes them much stronger and more durable. The castings are made from good *new pig iron*, without any admixture of *old scrap*. The wrought iron work is of excellent quality, with *extras* attached to the plows. A liberal discount to dealers.

A. B. ALLEN & Co., 187 Water-street, N. Y.
March 1—3t.

AG. WAREHOUSE AND SEED STORE,

Nos. 10 and 12 Green-st., Albany.

FOR sale, at all times, at the above establishment, all kinds of Agricultural and Horticultural Tools, Implements, and Machines, from the best manufacturers, and at as low prices as at any establishment in the country.

Plows of all kinds and sizes;
Harrows and Cultivators, of different kinds;
Manure Forks, Shovels, Spades, Hoes;
Horse Powers and Threshing Machines;
Corn Shellers, Straw Cutters, Corn and Cob Mills;
Drill Barrows and Corn Planters;
Fitzgerald's Portable Burr Stone Mills;
Harvesting and Haying Tools of all kinks;
Ox Yokes and Bows, Draft, Tie-up, and other chains;
Grant's and other Fanning Mills.

Garden Rollers, Ladies' Weeding Trowels, Grass Shears, French pattern, Border Shears, Garden Reels and Lines, Budding and Pruning Knives, Garden Rakes, Hay Knives, Transplanting Trowels, Pruning Saws, various kinds, Bark Mills, Sugar Mills, Bush and Bill Hooks, Root or Vegetable Cutters, Bull Rings, Axes and Hatchets, Patent Axe Handles, Wheelbarrows, Anti-Friction Rollers, Ship Scrapers, Spinning Wheels, Reels, Smith's Corn Sheller, Burrall's Corn Sheller, &c.

Churns, Cheese Presses, Tubs, and Pails, &c., &c.

Together with a general assortment of Field, Garden, and Flower Seeds, Seed Corn, Choice Potatoes, &c., &c.
April 1. LUTHER TUCKER.

POUDDRETTE.

THE Lodi Manufacturing Company offer their Poudrette for sale the following season at *reduced* prices, viz: In barrels delivered free of cartage, at any wharf or place in the city of New-York, at the rate of $1.50 per barrel, for any quantity over 7 bbls.; (under 7 bbls., $1 75.) In *bulk*, at the factory, on the Hackensack river, where vessels drawing 8 feet of water can come, it will be delivered at the rate of 25 cents per bushel. Planting 4 feet apart, each way, 2 barrels or 8 bushels of Poudrette will effectually manure an acre of corn, and will vie in cheapness and efficiency with any manure now in use.

Apply by letter *post-paid*, to the "LODI MANUFACTURING CO.," New-York, or to James B. Cox, Agent, No. 90 West-st.
April 1—3t.

PLOWS! PLOWS!!

THE attention of Farmers and Dealers is particularly invited to our assortment of Farming Tools—among which may be found a complete assortment of the most approved as well as common plows, including all sizes of the Center Draft, Side-Hill, Subsoil, Self-Sharpening Plows, from Messrs. Prouty & Mears, of Boston. Also, the Eagle, Subsoil, Side-Hill, Self-Sharpening, and others, from Messrs. Ruggles, Nourse & Mason, of Worcester, Mass. Also, the Peekskill Plow, all sizes, from Minor & Horton, of Peekskill, N. Y., and Delano's Diamond Plow—all for sale at the manufacturers' home prices, and warranted. The adjustable Steel Point Self-Sharpening Plows, from the factory of Messrs. Ruggles, Nourse & Mason, is just received. This is a new improvement in the wearing parts of the plow, and has several advantages over the common plows in use. (See R. & N.'s advertisement.) Also on hand Cultivators, Harrows, Seed-Sowers, and Planters, Ox-Shovels or Scrapers, Field Rollers, &c., &c., &c., at the Albany Agricultural Warehouse and Seed Store, Nos. 10 and 12 Green-st., Albany, N. Y. L. TUCKER.

TO NEW-YORK FARMERS AND EMIGRANTS.

ONE hundred and fifteen thousand acres Illinois Lands for sale, in tracts of 40, 80, 120, 160 acres, or more, to suit purchasers. The lands are all first rate, and among the very best in the state, and are situated in the counties most densely settled, viz., Morgan, Scott, Cass, Mason, Menard, Green, Sangamon, Logan, Christian, Mason, McLean, Woodford, and Macoupin. To actual settlers every reasonable indulgence will be given as to time of payment. The price from $3 to $5 per acre.

A correspondent of one of the New-York papers, writes respecting this section of Illinois as follows:

"*Beardstown, Cass Co., Ill., Jan.* 10, 1846.

THE RICHES OF THE WEST.—GOTHAMITES ON THE WING.—It is now six weeks since I left the city of Gotham, during which time I have seen considerable of this western country, and I must say the beautiful prairies of Illinois, far exceed what I had anticipated, and this country may truly be called the garden of the world. There is nothing to prevent farmers in this country from getting rich, as the land is the most fertile in the world, and it will produce everything grown in the vegetable kingdom.

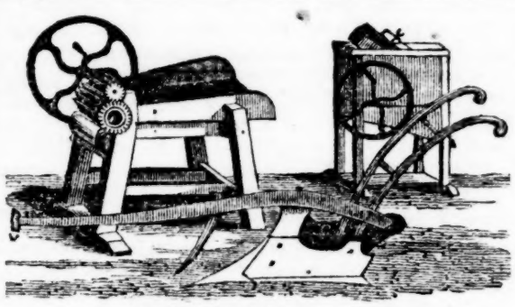
"A New England man would hardly believe me if I tell him that some farmers here produce ten thousand bushels of corn, and half as many bushels of wheat in a year, to say nothing of cattle and hogs, of which some raise as many as five hundred head. One farmer told me that he raised the last year 6000 bushels of corn, and it was all produced by the labor of two men only.

"Cattle and sheep feed upon the prairies all winter, as they are seldom covered with snow."

Most of the above lands may be cultivated 100 years or more without manuring, being of the richest alluvial soil. The titles are indisputable, and the lands will be sold at low prices and in quantities to suit purchasers. Letters (post paid) addressed to D. B. AYERS, Esq., of Jacksonville, Ill., or the subscriber, will receive prompt attention. As many persons out of the state have an idea that the taxes are very burdensome in Illinois, we state that they range from $1.50 to $2.00 per annum, on 80 acres of land.

JOHN GRIGG,

Jan. 1, 1847.—6t No 9 North Fourth-st., Philadelphia.



JOHN MAYHER & CO.

U. STATES AGRICULTURAL WAREHOUSE,

No. 195 Front-street, (near Fulton,) New-York.

Foundry and Machine Shop 502 *and* 504 *Water-st.*

THE subscribers respectfully invite the attention of Merchants and Dealers in AGRICULTURAL IMPLEMENTS to the superior assortment of goods which they manufacture, embracing Plows and Castings of the most approved kinds in use, and possessing all the latest improvements in style, workmanship, and material, among which are the following articles, that can be seen a their warehouse:

Pitts' Corn and Cob Crusher. Price, $40
Sinclair's do.—hand or horse. $30
Fitzgerald's Patent Burr Stone Corn Mill, $60
Sinclair's Cast Plate Corn Mill, $40
Swift's Corn, Coffee, and Drug Mill, $6 to $8
Hovey's far-famed Hay, Straw, and Stalk Cutter;
Sinclair's Hay, Straw, and Stalk Cutter;
Greene's do. do. do.
Mayher & Co.'s do. do.
Langdon's do. do. do.
I. T. Grant & Co.'s Premium Fanning Mill;
J. Mayher & Co.'s do. do.
Boston Centre Draught Premium Plows,
Bergen's Self-Sharpening Plows;
Dutcher's Plows of all kinds;
Hitchcock's do. do.
Freeborn's do. do.
Minor & Horton's Plows, all k'ds;
Worcester Eagle do.
Mayher & Co.'s Eagle improved Plows;
Mayher & Co.'s much approved Plows;
Langdon's Horse Hoe Plows;
Castings to fit all kinds of Plows in use;
Mayher & Co.'s 2 Horse Power, Price, $55
do. do. 4 do. $75
do. do. 2 Thresher, $25
do. do. 4 do. $30
John Mayher & Co.'s First Premium Corn Sheller;
Burrall's Corn Sheller;
Warren's do. do.
Sinclair's Corn Sheller and Husker;
Pitt's Horse Power and Threshing Machine;
E. Whitman's Jr., Thresher and Separator;
Subsoil Plows of different kinds.

Cultivators, Wheelbarrows, Canal Barrows, Store Trucks, Horse and Ox Carts, Mule Wagons, Ox-Yokes and Bows, Hames, Trace and Ox Chains, Road Scrapers, Ground Augurs, Shovels, Spades, Pick Axes, Hay and Manure Forks, Rakes, Hoes, Scythes, Scythe Snathes, Grain Cradles, Crow Bars, &c., &c., all of which will be sold as cheap as they can be bought at any other store in the city, and are warranted.

Gin Gear, Segments, Rag Wheels, &c.

Castings of all kinds made to order. March 1, 1847—tf.

STOCK FOR SALE.

MATCH and single Horses, some of which can trot their mile under three minutes, others rack and gallop easily, making admirable saddle-horses for ladies and gentlemen; Durham, Devon, Hereford, and Ayrshire Cattle; Merino, Saxon, South-Down, and Leicester Sheep: the large white English breed of Swine, Berkshires, Poultry, &c., &c. Apply to

A. B. ALLEN, 187 Water-Street, New-York.

March 1, 1847—tf.

SENECA LAKE.

A BEAUTIFUL FARM for sale, lying on the east side of the Seneca Lake, Seneca Co., N. Y., about 7 miles south of Geneva, containing about 159 acres of the best quality of land There is about 50 acres of excellent wood and timber land, and the arable and meadow land is of the best quality and in good condition. Lowest price $50 per acre. The one-half of the purchase money may remain on bond and mortgage for many years. Title good The farm may be viewed at any time. Apply to RICHARD DEY on the premises, or to JAMES R. DEY, No. 51 Liberty-st., New-York, or to JACOB C. DEY, Fulton-st., Brooklyn.

Fayette, March 1, 1847—3t.

A BOOK FOR EVERY FARMER.

JOHN P. JEWETT & Co., 23 Cornhill, Boston,

HAVE just published one of the most valuable works for farmers ever issued from the American press, entitled

THE AMERICAN VETERINARIAN, or DISEASES OF DOMESTIC ANIMALS,

showing the causes, symptoms, and remedies, and rules for restoring and preserving health by good management. with directions for training and breeding. By S. W. Cole, editor Agricultural department Boston Cultivator.

Mr. Cole has spent several years in compiling and testing the facts he now offers to the farmers of this country. He has produced a work of great value to every man who keeps but a single horse or cow, but to the practical farmer its value can hardly be over estimated. The whole subject of the *Treatment of Domestic Animals*, is treated in the most thorough manner, comprising the Horse, Ox, Cow, Sheep, Hogs, Dogs, Hens, Turkeys, Geese, Ducks, Birds, Bees, &c., &c. The whole is compressed into one volume of 288 closely printed pages, with 7 beautiful wood engravings, firmly bound in leather. To be sold at the low price of 50 cts., in order to bring it within the means of every man. No pains or expense have been spared on the part of the author or the publishers, to produce a work worthy a place in every Farmer's library.

For sale at the office of "THE CULTIVATOR," and at the principal Book and Agricultural Stores in the country.

JOHN P. JEWETT & Co.

AGENCY FOR PATENTS,

Washington, D. C.

ZENAS C. ROBBINS, Mechanical Engineer, and Agent for procuring Patents, will prepare the necessary drawings and papers for applicants for Patents, and transact all other business in the line of his profession at the Patent Office. He can be consulted on all questions relating to the Patent laws, and decisions in the United States or Europe. Persons at a distance, desirous of having examinations made at the Patent Office, prior to making application for a patent, may forward, (post-paid, enclosing a fee of five dollars,) a clear statement of their case, when immediate attention will be given to it, and all the information that could be obtained by a visit of the applicant in person, promptly communicated.

All letters on business *must be* post paid, and contain a suitable fee, where a written opinion is required.

Office on F. street, opposite the Patent Office.

He has the honor of referring, by permission, to

Hon. Edmund Burke, Commissioner of Patents;
Hon. H. L. Ellsworth, late " "
H. Knowles, Machinest, Patent Office;
Judge Cranch, Washington, D. C.;
Hon. R. Choate, Massachusetts, U. S. Senate;
Hon. W. Allen, Ohio;
Hon. J. B. Bowlin, M. C., Missouri;
Hon. Willis Hall, New-York;
Hon. Robert Smith, M. C., Illinois;
Hon. S. Breese, U. S. Senate;
Hon. J. H. Relfe, M. C., Missouri;
Capt. H. M. Shreeve, Missouri.

May 1, 1847—3t.

THE OLD MORGAN GIFFORD HORSE,

SO well known in Vermont and New Hampshire as the highest blooded Morgan stallion now remaining, will be found the coming season at the subscriber's stable, in Walpole, N. H.

Terms—$15, of which $5 is to be paid at the time of service, and the remaining 10 if the mare proves in foal. Pasturing will be provided for mares from a distance, and the necessary attention given them. Accidents and escapes at the risk of the owners. A cut of this horse may be seen in the Sept. No., 1846, of the Cultivator. FREDERICK A. WIER.

Walpole, N. H., March 9, 1847.—3t.*

THE ENTIRE HORSE,

MORSE'S GREY, or "NORMAN," will stand for the present season at the stable of JAMES RICE, at Germondville, three miles north of Lansingburgh. CALVIN MORSE.

Lansingburgh, May 1, 1847—2t.

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HAY AND HARVESTING TOOLS.

REVOLVING HORSE RAKES.—These valuable implements save a great amount of labor—a man and horse being able to perform as much with one of them as eight men could do with hand rakes. Those offered are of the most approved construction.

GRAIN CRADLES, of very neat and superior construction. Also, GRAIN AND GRASS SCYTHES, of all kinds.

HAY FORKS.—Partridge's spring-tempered—the neatest, handiest, and best forks in the world. For sale at the Albany Ag. Warehouse and Seed Store, No. 10 Green-st.

June 1. LUTHER TUCKER.

DAIRY UTENSILS.

CHURNS.—Kendall's and Galt's—admitted to be the best kinds in use, both as regards the time required for producing butter, and the ease with which they may be operated.

CHEESE PRESSES.—Collins & Stone's Self-Acting, which presses the cheese by its own weight, is considered by all who have tried it, superior to any other kind. It is a light, portable article, and may be readily lifted by one person. For sale at the Albany Ag. Warehouse, No. 10 Green-St.

June 1. LUTHER TUCKER.

PERFECTION AND YOUNG ALFRED

WILL stand the ensuing season at my stable, 3 miles southwest of Geneva

Terms—Perfection, $10 by the season. Young Alfred, $6. Insurance to be agreed upon.

Pasturing will be provided for mares from a distance, and attention given them. Accidents and escapes at the risk of the owners.

PEDIGREE.—Perfection.—Sire, imported horse Alfred; dam, imported mare Blossom. To Perfection was awarded, at the late State Fair, a discretionary premium for the best 3 years old, in the 1st class—also the first premium in Ontario Co.

Young Alfred's dam drew the 1st premium at the State and County Fairs, in 1845. GEORGE FORDON.

June 1—2t*

SPANISH MERINO SHEEP.

FOR sale a few choice Merino sheep—bucks and ewes—of undoubted purity of blood, and a quality that will give satisfaction to purchasers. They can be sent west by canal, at the subscriber's risk. R. J. JONES.

Cornwall, Vt., June 1, 1847.—tf.

HORSE POWERS AND THRESHERS.

THE subscriber furnishes the above machines of all kinds at wholesale or retail.

It may be unnecessary again to call attention to the great superiority over all others for the price, of the "Warren Two and Four Horse Powers and Threshers," (which have been so very much improved the last year,) as the many who have purchased and are purchasing, testify.

The undersigned is also enabled again to add his testimony in favor of these machines, as being far before any others he has seen or heard of, after travelling extensively in the southern and western states, and Texas, during the last five months.

Orders for Corn Shellers, Corn Mills, Corn and Cob Crushers, Plows, and all kinds of Agricultural Machines and Implements, will be promptly attended to. JAMES PLANT,

June 1—1t. 5 Burling Slip, N. Y. City.

KINDERHOOK WOOL DEPOT.

THIS enterprise has been in successful operation for the past two years, and has fully met the expectations of the wool-growers, who have been its patrons and projectors. It will be continued the present year, conducted as heretofore. The subscriber will be prepared to receive wool as soon after shearing as may be convenient for the growers to deliver it. The fleeces will be thrown into sorts according to *quality* and *condition*. Those who desire it can have their clip kept separate, and sold when ordered. A discrimination will be made between wool in good or bad condition. Sales will be made for cash, and the owners can rely on prompt returns. The charges for receiving, storing, sorting, and selling, will be one cent per lb. and insurance. Liberal advances in cash made on the usual terms. Sacks will be forwarded to those who wish, by their paying the transportation and 12½ cents each for their use, or if furnished by the owner of the wool, will be returned, or sold at their value, as he may direct.

Reference can be had to Dr. J. P. Beekman, Kinderhook, D. S. Curtis, Canaan, C. W. Hull, New Lebanon, Col. Co., J. B. Nott, Esq, Albany, D. Rogers, Hoosick, Rens. Co, C. H. Richmond, Esq., Aurora, Cayuga Co., Col. J. Murdock, Wheatland, Monroe Co., N. Y. H. BLANCHARD.

Kinderhook, June 1, 1847—3t.

CORN MILLS.

THE subscribers have just received at their Agricultural Warehouse, a newly invented cast-iron mill, for grinding corn and other grain, either by hand or horse-power. It will grind from 3 to 4 bushels per hour. Price, $30.

Also the hand Corn Mill, which grinds from 1 to 1½ bushels per hour. Price $6.50.

These mills are highly economical and convenient, and every farm and plantation ought to have them. They are simple in construction, not liable to get out of repair, and are easily operated. When one set of plates is worn out, they can be replaced at a trifling cost. A. B. ALLEN & Co.,

May 1—3t. 187 Water-st., New-York.

RENSSELAER INSTITUTE.

THE Summer Session for 1847 of the Rensselaer Institute, will be opened on Wednesday the 5th of May proximo. For information in regard to the course of study, terms of instruction, and other articulars, inquiries may be addressed to the Director of the nstitute, Prof. B FRANKLIN GREENE, Troy, N. Y., by whom amphlets will be furnished containing a detailed view of the course f study and all other necessary information.

Rensselaer Institute, Troy, N. Y., April 15, 1847—2t.

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